15 April 1996 Change 16 - 15 September 2002

#### **TECHNICAL MANUAL**

# ORGANIZATIONAL MAINTENANCE LINE MAINTENANCE PROCEDURES

**NAVY MODEL** 

F/A-18A/B/C/D

161353 AND UP

This issue includes IRAC 6

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0801LP1017193

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#### List of Current Changes

Original15 Apr 96	Including previously incorporated IRAC's 1 through 3	Change1 Sep 96
Change215 Mar 97	Change31 Jul 97	Change41 Oct 97
Change51 Jul 98	Change61 Dec 98	Change71 May 00
Change815 Jun 00	Change91 Aug 00	Change1015 Oct 00
(IRAC 4 Inc.)	Change1115 Dec 00	Change121 Jun 01
Change1315 Jul 01	(IRAC 5 Inc.)	Change141 Oct 01
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Only those work packages/pages assigned to the manual are listed in this index. Insert Change 16, dated 15 September 2002. Dispose of superseded work packages/pages. Superseded classified work packages/pages shall be destroyed in accordance with applicable security regulations. If changed pages are issued to a work package, insert the changed pages in the applicable work package. The portion of text affected in a change or revision is indicated by change bars or the change symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands, change bars, or MAJOR CHANGE symbols. Changes to diagrams may be indicated by shaded borders.

Total number of pages in this manual is 1210 consisting of the following:

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M		4 blank	5	10 blank	0
N		002 00		003 02	
P			16		7
Q blank			16		7
TPDR-1			16		7
TPDR-2	16		16		7
001 00		5	16	5	7
	16		16		7
2	16	7	16	7	7
3	16	8	16	8	7
4	16	9	16	9	7
5	16	10	16	10 blank	7
6	0	11	16	004 00	
7	0	12	16	1	5
8	5	13	16	2	0
9	3	14	16	3	0
10	0	15	16	4	0
11	16	16	16	5	0
12	16	17	16	6	0
12A	16	18	16	7	0
12B blank	16	19	16	8	5
13	0	20 blank	16	8A	5
14	0	003 00		8B blank	5
15	0	1	0	9	0
16	3	2 blank	0	10	0
17	0	003 01		11	0
18	3	1	0	12	0
19	16	2	0	13	0
20	0	3	0	14	0
21	16	4	0	15	0
22	0	5	0	16	0
001 01		6	0		0
1	5	7	0	18	0
2	5	8	0	19	0
3	5	9	0	20	0

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21	0 3	0	6	0
22	0 4	0	7	0
23	0 5	2	8	0
24	2 6	0	9	16
005 00	7	13	10	0
1		13	11	3
2 blank	0 8A	13	12	0
005 01	8B blank	13		16
11	3 9	13	14	0
2	0 10	0	15	0
2A1	3 11	0	16	0
2B blank1	3 12	0	17	0
3	7 13	0	18 blank	0
4	0 14	0	008 00	
5	0 15	0	1	0
6	0 16	0	2 blank	0
7	7 17	0	008 01	
81	3 18	0	1	0
8A1	3 19	0		0
8B blank1	3 20 blank	0	3	0
91	3 006 00		4	0
10		0	5	0
11		0	6	0
12	0 3	0	7	0
13	0 4	0	8	0
14	0 5	0	008 02	
15	0 6	0	1	0
16		0	2	0
17	0 8 blank	0	3	0
18 blank	0 007 00		4	0
005 02		16		0
11		0		0
2		16	7	0
2A1		0		0
2B blank1	3 5	0	9	0

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
10	0	91	12	5.4	11
009 00	0		12		11
	1		12		
	0		12		11
	0				
	0				
	0				
	0		11	011 00	
	0				0
	0		11		0
	0				0
	1		16		0
	1		11		0
			11		0
010 00	1			012 00	0
	10		11	01= 00	0
	16		11		0
	11		11		0
	11		11		0
	11		11		0
	16		11		0
	11		11		0
	11		11		0
	11		11		0
	11		11		0
	11		16		0
	11		11		0
	11		16		0
13	11	46	11	13	0
14	11	47	11	14 blank	0
15	11	48	11	013 00	
16	11	49	11	1	0
17	11	50	11	2	0
18	11	51	11	3	0
19	11	52	11	4	0
20	11	53	11	5	0

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WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number
6	0	8	0	23	10
014 00		9	7	24	0
1	0	10	7	25	0
2 blank	0	11	5	26	0
014 01		12	5	27	0
1	15	13	7	28	0
2	10	14 blank	7	29	10
3	10	015 00		30	10
4	15	1	0	31	10
4A	10	2 blank	0	32	10
4B blank	10	015 01		015 02	
5	0	1	15	1	13
6	0	2	10	2	13
7	0	3	10	2A	13
8	0	4	10	2B	13
9	0	5	10	3	2
10	2	6	15	4	13
11	15	6A	10	5	13
12	0	6B blank	10	6	13
13	10	7	10	7	13
14	10	8	10	8	13
15	10	9	10	9	13
16	10	10	10	10	2
17	10	11	10	11	13
18	10	12	10	12	2
014 02		13	15	13	7
1	13	14	0	14	7
2	13	15	0	15	7
2A	8	16	7	16	2
2B blank		17	2	17	2
3		18	10	18	2
4	0	19	15	19	7
5	0	20	0	20	2
6	13	21	0	21	7
	13		10		2

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
23	7	15	0	23	0
24	7	16	0	24	9
25	7	17	0	25	16
26	7	18	0	26	16
27	7	19	16	26A	9
28	2	20	16		9
29	2	21	0	27	9
30	2	22	0	28	0
31	2	017 00			0
32	2	1	16	30 blank	0
33	2	2	16	018 00	
34	2	2A	16	1	16
35	5	2B blank	16	2	0
	5	3	3	3	0
	5	4	0	4	0
	5		0		0
016 00			16		0
1	16	7	0	7	0
2	0	8	0		0
	0		0	9	16
	0		0	10	3
	16		16		3
	16		16		3
	16		9		0
	16		9		0
	0		0		0
	0		0		0
	16		0		0
	16		0		0
	16		0		0
	16		0		3
	16		0		3
	16		0		3
	0		0		0
	0		0		0

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WP/Page Change	WP/Page	Change	WP/Page	Change
Number Number	Number	Number	Number	Number
018 01	020 00		4A	7
10	1	3	4B blank	7
20	2	3	5	0
30	3	3	6	11
40	4	3	6A	11
50	5	3	6B blank	11
6 blank0	6	3	7	0
018 02	021 00		8	0
10	1	16	9	0
20	2	0	10	0
30	3	0	11	0
40	4	16	12	0
50	5	3	13	16
6	6	3	14	0
70	7	0	15	0
80	8	0	16	0
90	9	0	17	0
100	10	0	18	0
110	11	0	19	5
120	12	0	20	0
019 00	13	0	21	0
116	14	0	22	16
25	15	0	23	0
35	16	0	24	0
45	17	0	25	0
55	18	0	26	0
65	19	0	27	0
75	20	0	28	0
85	21	0	29	0
95	22	0	30	16
1016	022 00		31	16
115	1	16	32	16
125	2	11	33	16
135	3	3	34	0
14 blank5	4	3		

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
023 00		6A	3	12	5
	0		3	13	0
2	0		0		0
	0		0	030 00	
4	0	9	0	1	0
	0		0		0
	0	028 00		030 01	
	0		5		0
	0		0		0
	0		0		0
	0		0		0
	0		0		0
	0		0		0
	0		0	***************************************	0
	0		0		0
	0		0		0
	0		0		0
024 00 deleted			0		0
024 00 deleted 025 00	0		5		0
	0		0		0
	0		0		0
	0	029 00	10		0
	0		16		0
026 00	-		10		0
	5		3		0
	5		1		0
	5		7		0
	5	***************************************	10	030 02	
027 00			10		11
	3		10		7
	0		7		7
	0		16		7
	0		0		7
	0		0		7
6	3	11	0	7	7

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
	7		7		1
	7 7		7		1
	7		7 7		1
	7	031 00	-		1
	7		7		1
	7		7		1
	7		7		1
	7		7		1
	7		7		1
	7		7		16
	7		7		14
20	7	8	7	16	7
21	7	9	7	17	1
22	7	10	7	18	1
23	7	11	7	19	1
24	7	12	7	20	1
25	7	13	7	21	1
26	7	14	7	22	1
27	7	15	7	23	1
28	7	16	7	24	1
	7		7		1
	7		7		1
	11		7		1
	7		7		
	7		7		
			7		
			7		
	7		7		
	7		7		
	7		7		
	7	032 00			
	7		16		
	7		1		5
42	7	3	1	38	1

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
033 00		9	16	6	0
1	0	10	12	7	0
2	0	11	12	8	0
3	0	12	12	9	0
4	0	13	12	10	0
5	0	14	16	11	0
6	0	15	12	12	0
7	0	16	12	13	0
8	0		12		0
9	0	18	12	036 02	
10	0	19	12	1	11
11	0	20	12	2	0
12	0	21	16	3	0
034 00		22	12	4	0
1	16	23	12	5	0
2	16	24	12	6	0
3	0	25	12	7	0
4	0	26	12	8	11
5	0	27	12	9	11
6	0	28	12	10	11
7	0	29	12	11	7
8	0	30	12	12	0
9	0	31	12		0
10	0	32	12	14	0
	5	33	12		0
12	0	34	12	16	0
035 00		036 00		17	0
1	16	1	0	18	0
2	12	2 blank	0	037 00	
3	16	036 01		1	16
4	12	1	0	2	3
5	12	2	0	3	16
6	12	3	0	4	3
7	12	4	0	5	3
	12		0		3

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7 3 16A	
	- 5
8	
8A	
8B blank 16 18 0 16 16	
9 0 17 17	
10	5
11	
123 20B blank16 1	
13 0 2	
14	
15	16
16	16
1716 6	16
18 16 040 00	
19 0 1	16
20 26 0 2	0
038 00 27 0 3	0
1	0
2	0
37 6	16
4	0
5	0
6 0 038 01 9	0
75 10	0
8 16 2 0 11	0
8A0 12	0
8B blank 16 4 0 13	0
9 0 5 0 14	0
10 0 6	0
11	0
12 0 8 17	0
13 0 9 18	0
14	0
15	0
160	

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WP/Page	Change	WP/Page	Change	WP/Page	Change
Number	Number	Number	Number	Number	Number
041 00		20	0	12	0
1	16		0		0
2			0		0
3			0		0
4			16		0
5			0		0
6			0		0
7			16		0
8			7		0
9			0	044 00	
10			0		0
042 00			0		0
1	16		0	044 01	
2			0		0
3			0		0
4			0		0
5			0		0
6			0		0
7			0		0
8			0	***************************************	0
9			16		0
10			16		0
			16		
11			16		0
12		043 00	0		0
13			0		0
14			0		0
15			0		0
16			0		0
16A			0		0
16B			0		0
16C			0		0
16D blank			0		0
17			0		0
18			0		0
19	0	11	0	22	0

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WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number
044 02		12	0	11	0
1	0	13	0	12	0
2	0	14	0	13	0
3	0	15	0	14	0
4	0	16	0	047 00	
5	0	17	0	1	0
6	0	18	0	2	0
7	0	19	0	3	0
8	0	20	3	4	0
9	0	21	3	048 00	
10	0	22	0	1	3
11	0	23	5	2	3
12	0	24 blank	5	3	3
13	0	045 00		4	3
14	0	1	7	5	3
15	0	2	3	6 blank	3
16	0	3	7	049 00	
17	0	4	7	1	5
18	0	4A	7	2	3
19	0	4B blank	7	3	3
20	0	5	3	4	3
21	0	6	3	5	5
22 blank	0	7	3	6	5
044 03		8	3	7	3
1	5	046 00		8	3
2	0	1	0	9	3
3	0	2	0	10	3
4	0		0	11	3
5	0		0		3
6			0	050 00	
7	0		0	1	0
8			0	2	0
9	0	8	0	3	0
10	0		0	4	0
	0		0		0

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Page P/(Q blank)

WP/Page Number	Change Number	WP/Page Number	Change Number	WP/Page Number	Change Number
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7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
16 blank	0				

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## LIST OF TECHNICAL PUBLICATION DEFICIENCY REPORTS INCORPORATED

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

This WP supersedes TPDR WP, dated 15 December 2001.

1. The TPDRs listed below have been incorporated in this issue.

IDENTIFICATION NUMBER/ QA SEQUENCE NUMBER	LOCATION
09558-99-0071	WP001 00
09706-99-0044	WP040 00
39787-99-0025	WP022 00
39787-00-0023	WP029 00
39787-00-0025	WP016 00
39787-00-0026	WP016 00

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39783-00-0165	WP001 00
65888-00-0453	WP019 00
09257-01-0011	WP018 00
09485-01-0029	WP001 00
63922-01-0009	WP016 00
65888-01-0227	WP037 00
63126-02-5013	WP035 00

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

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Charging/Dumping		
Accumulator, EMER BRAKE, Servicing		033 00
Actuator, Arresting Hook, Servicing	L	$032\ 00$
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Air Turbine Starter/AMAD/Generator Oil		
Servicing/Draining	Р	017 00
Air, External Ground Cooling, Application and		
Removal	L	011 00
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AMAD		
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Aircraft - General	P	$007 \ 01$
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Preparation for Operation	L	018 00
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- APU Oil	P	018 00
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Hydraulic Charging	P	015  00
Servicing	P	$015 \ 00$
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Avionics Cooling Ram Air Inlet Plug	P	$022 \ 00$
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Bleeding, Decontamination, Hydraulic System	L	010 00
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Bolts, Self Retaining	L	$046\ 00$
Bonding, Electrical	L	$037 \ 00$
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BRU-33() Bomb Ejector Rack Ground Safety		
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Display Indicator	L	003 00
Canopy		
Cleaning	P	007 00
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Deicing, Windshield and Canopy	P	$007 \ 00$

## 001 00

,	P=A1-F18A	WP Number C-PCM-000) C-LMM-000)
Density Setting, Main Fuel Control - See Specific Gravity Adjustment  Digital Display Indicator, Cockpit	Р	009 00
Set Up For Displays Nose Wheelwell	L	008 00
Built-In Test/Reset	L	003 00
Maintenance Code Display	L	003 00
Operation	L	003 00
Strain Gage Select	L	003 00
Discharging, Windshield and Canopy Static Charge		004 00
Servicing		022 00
Servicing Cover	P 1 00)	022 00
AMAD Oil	P	017 00
APU Oil	P	016 00
Engine (Oil)	P	014 00
Residual Fuel		$011 \ 02$
Drains, Vents and Openings, Exterior Drive, Safety Lock, LAU-115() Guided Missile	L	041 00
Launcher	Р	023 00
Dumping, APU Accumulator		015 00

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**WP Number** 

		C-PCM-000)
(L=A1-	-18A	C-LMM-000)
Ejection Control Handle/Aircraft Canopy Jettison		
Aircraft Ground Safety Pin	P	$023 \ 00$
Ejection Seat Aircraft Ground Safety - Pin Set	P	$024 \ 00$
Ejection Seat Cover, Aircraft Ground Servicing	P	$022 \ 00$
Ejection Seat Safe/Armed Handle	P	$023 \ 00$
Electrical Bonding, Sealing and EMC Protection	L	037 00
Electrical Power Application and Removal	L	004 00
Circuit Breaker Requirements	L	006 00
Control Switch Checklists Tables	L	005 00
GND PWR Switch Functions Tables	L	005 00
Procedures	L	004 00
Utility Electrical Power	L	013 00
Electrical (Static) Grounding	P	004 00
Electromagnetic Compatibility (EMC) Protection	L	037 00
Electronic Equipment Control C-10380/ASQ,		
Data Entry	L	$043 \ 00$
EMER BRAKE Accumulator Servicing	L	033 00
Emergencies (A1-F18AC-LMM-020, WP001 00)		
Emergency Oxygen System Pressure Chart		
(A1-F18AC-120-300, WP121 00 or		
A1-F18AE-120-300, WP010 00)		
EMI Cover Assembly, Removal and Installation	L	037 00
Engine		
Chip Detector Inspection	P	$014\ 00$
Draining (Oil)	P	014 00
Emergencies (A1-F18AC-LMM-020, WP006 00)		
Ferrograph (Oil)	P	019 00

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Title WP Number (P=A1-F18AC-PCM-000) (L=A1-F18AC-LMM-000)

Indicator, Integrated Fuel-Operation	L	$018 \ 02$
JOAP (Oil)	P	018 00
Operation	L	$022 \ 00$
Preparation for Operation	L	018 00
Runup Holdback Assembly	L	019 00
Servicing (Oil)	P	013 00
Water Wash	L	$023 \ 00$
Engine Air Inlet Cover	P	$022 \ 00$
Engine Bay Vent Cover	P	$022 \ 00$
Engine Inlet Aircraft Ground Servicing Screen	P	$024 \ 00$
Engine Sump Vent Plug	P	$022 \ 00$
Equipment Bag, Aircraft Safety	P	$023 \ 00$
Exit Door Plug, Bleed Air	P	$022 \ 00$
Exterior Drains, Vents and Openings	L	$041 \ 00$
External Fuel Tanks		
Defueling, Alternate	P	008 01
Refueling, Alternate	P	008 01
Removal and Installation (A1-F18AE-LWS-000)		
Transfer Test	L	036 00
External Ground Cooling Air Application and		
Removal	L	011 00
Fastener and Attaching Parts, Corrosion		
Protection	L	048 00
Ferrograph, Engine (Oil)	P	019 00
Fires (A1-F18AC-LMM-020, WP005 00)		
Flap Control Surface Lock	P	$024 \ 00$
FLIR Sensor Unit Cover	P	$022 \ 00$
Fluid Sampling - Radar Liquid Cooling System	L	$035\ 00$

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**WP Number** 

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	A1-F18AC	-PCM-000)
(L=	AT-LIOAC-	-LMM-000)
Fluids Low Maintenance Codes Test	P	006 00
Folding Wings	P	$021\ 00$
Foreign Object Sealing		$045 \ 00$
Fuel/Air Heat Exchanger Cover	P	$022\ 00$
Fuel Draining, Residual	P	$011 \ 02$
Fuel-Engine Indicator, Integrated Operation	L	$018 \ 02$
Fuel Leak Test	L	018 01
Fuel Tanks, External		
Removal and Installation (A1-F18AE-LWS-00	00)	
Transfer Test	L	036 00
Fuselage Fuel Tanks Alternate Defueling	P	011 01
General Antiicing, Deicing and Defrosting		
of Parked Aircraft	P	007 01
Generator/Air Turbine Starter/ AMAD Oil		
Servicing	P	017 00
GND PWR Switch Functions	L	$005 \ 00$
Ground Cooling Air, External, Application and		
Removal	L	011 00
Ground Maintenance Mode, AMAD	L	021 00
Ground Fires (A1-F18AC-LMM-020, WP005 00)		
Ground Intercommunications Hookup	L	012 00
Ground Protective Devices	P	$022\ 00$
Ground Safety Devices		
Required During All Ground Operations	P	$023\ 00$
Required During Maintenance	P	$024\ 00$
Grounding, Electrical (Static)	Р	004 00
Gun Electrical Signal Safety Switch	P	$023 \ 00$

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•		WP Number AC-PCM-000) AC-LMM-000)
Gun Holdback Handle	Р	023 00
Handle		
BRU-32() Bomb Ejector Rack, Safety,		
Ground	P	023 00
BRU-33() Bomb Ejector Rack, Safety,		
Ground	Р	023 00
Ejection Seat, Safe/Armed		$023 \ 00$
Gun Holdback	Р	023 00
Head-Up Display Combiner Aircraft Ground		
Servicing Cover	Р	022 00
Heat Exchanger Cover, Fuel/Air		022 00
Hoisting		039 00
Holdback, Engine Runup, Installation and		
Removal	L	019 00
Hook, Arresting		023 00
Hookup		
Ground Intercommunications	L	012 00
Proximity Switch Control	L	007 00
Horizontal Stabilizer Support		024 00
Hydraulic Charging/Servicing/Dumping, APU		
Accumulator	Р	015 00
Hydraulic Power Application and Removal		009 00
Hydraulic Reservoir Servicing		020 00
Hydraulic System Air Bleeding/Decontamination.		010 00
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Set Up for Displays	L	008 00
or of for Displays	ப	000 00

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**WP Number** 

·		C-PCM-000)
Integrated Fuel - Engine Operation Nose Wheelwell	L	018 02
Built-In Test/Reset	L	003 00
Maintenance Code Display	L	003 00
Operation	L	003 00
Strain Gage Select	L	003 00
Test for Fluids Low Maintenance Codes	P	006 00
Inlet Cover, Engine Air	P	$022 \ 00$
Inlet Plug, Ram Air	P	$022 \ 00$
Instruments and Controls, Cockpit	L	044 00
Integrated Fuel - Engine Indicator Operation	L	018 02
Intercommunications Hookup, Ground	L	012 00
Introduction	L	002 00
Diagrams	L	002 00
Effectivities	L	002 00
Illustrated Parts Breakdown	L	002 00
Manual Issue Date	L	002 00
Manual References to IETM	L	002 00
Navy (AN) Standard/Common Name		
Nomenclature	L	002 00
Purpose	L	002 00
Quality Assurance Procedures	L	002 00
Record of Applicable Technical Directives Requisition and Automatic Distribution of	L	002 00
NAVAIR Technical Manuals	L	002 00

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·	F18AC	P Number -PCM-000) -LMM-000)
Technical Directives Technical Publications Deficiency Report	L	002 00
(TPDR)	L	002 00
IPB, MLG Wheel and Tire Assembly	L	$028 \ 00$
Jacking	L	038 00
Jacking Aircraft, Tiedown Arrangement	P	003 00
Jacks-In-Place Safing	L	038 00
JOAP (Oil)	P	018 00
Knob, Safety Release, LAU-116() Guided Missile		
Launcher	P	$023 \ 00$
Landing Gear Aircraft Ground Safety Pin	P	023 00
Laser Spot Tracker Dome Cover, Aircraft Ground		
Servicing	P	$022\ 00$
LAU-7( ) Launcher Detent Wrench Safety Pin	P	$023 \ 00$
LAU-115() Guided Missile Launcher Safety		
Lock Drive	P	$023\ 00$
LAU-116() Guided Missile Launcher Safety		
Release Knob	P	$023\ 00$
LAU-127A/A Guided Missile Launcher in Flight		
Lock (IFL)	P	$023\ 00$
Leak Test, Fuel	L	018 01
Leakage Limits, Allowable	L	$042 \ 00$
List of Technical Publication Deficiency Reports		
Incorporated	L	TPDR
Liquid Cooling System, Radar	L	$035 \ 00$
Decontamination	L	$035 \ 00$
Fluid Sampling	L	$035 \ 00$

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	F18A	WP Number C-PCM-000) C-LMM-000)
Sampling, Fluid	 L	035 00
Servicing and Bleeding	 L	$035 \ 00$
Liquid Oxygen Converter Exchange	 L	034 00
Lock		
Flan Control Surface	Р	024 00

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•	F18A0	VP Number C-PCM-000) -LMM-000)
Nose Landing Gear Aircraft Ground Safety	P	$024\ 00$
Refueling Probe Aircraft Ground Safety	P	$024 \ 00$
Speed Brake Aircraft Ground Safety	P	$024 \ 00$
Lowering	L	$038 \ 00$
Main Firing Handle Safety Pin		
Required During All Ground Operations	P	$023 \ 00$
Required During Maintenance	P	$024 \ 00$
Main Fuel Control Density Setting - See Specific		
Gravity Adjustment	P	009 00
Main Landing Gear Doors Aircraft Ground Safety		
Pin Set	P	024 00
Maintenance Codes		
Built-In Test/Reset	L	003 00
Display	L	003 00
Reset	L	003 00
Test for Fluids Low	P	006 00
MLG		
Shock Absorber Servicing	L	030 00
Tire Servicing	L	$025 \ 00$
Wheel and Tire Assembly	_	
IPB	L	028 00
Removal and Installation	L	027 00
Repair, MLG Wheel and Tire Assembly	П	021 00
Pressure Gage	L	027 00
Multipurpose Display Group Optics Cleaning	L	047 00
NLG	П	047 00
- 1	L	031 00
Cylinder and Piston Assembly Servicing	L	091 00

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Repair, NLG Wheel and Tire Assembly Pressure Gage
Tire Servicing
Wheel and Tire Assembly Removal and Installation
Installation
Nose Landing Gear Aircraft Ground Safety Lock P 024 00  Nose Landing Gear Aircraft Ground Safety Pin P 024 00  Nosewheel Steering Power Unit Safing P 024 00  Nose Wheelwell Digital Display Indicator  Built-In Test/Reset L 003 00  Maintenance Code Display L 003 00  Operation L 003 00  Strain Gage Select L 003 00  Test for Fluids Low Maintenance Codes P 006 00  Oil Sampling
Nose Landing Gear Aircraft Ground Safety Pin P 024 00  Nosewheel Steering Power Unit Safing P 024 00  Nose Wheelwell Digital Display Indicator Built-In Test/Reset L 003 00  Maintenance Code Display L 003 00  Operation L 003 00  Strain Gage Select L 003 00  Test for Fluids Low Maintenance Codes P 006 00  Oil Sampling
Nosewheel Steering Power Unit Safing P 024 00  Nose Wheelwell Digital Display Indicator  Built-In Test/Reset L 003 00  Maintenance Code Display L 003 00  Operation L 003 00  Strain Gage Select L 003 00  Test for Fluids Low Maintenance Codes P 006 00  Oil Sampling
Nose Wheelwell Digital Display Indicator         L         003 00           Built-In Test/Reset         L         003 00           Maintenance Code Display         L         003 00           Operation         L         003 00           Strain Gage Select         L         003 00           Test for Fluids Low Maintenance Codes         P         006 00           Oil Sampling         Oil Sampling         Oil Sampling
Built-In Test/Reset       L       003 00         Maintenance Code Display       L       003 00         Operation       L       003 00         Strain Gage Select       L       003 00         Test for Fluids Low Maintenance Codes       P       006 00         Oil Sampling       Oil Sampling       D       Oil Sampling
Maintenance Code Display         L         003 00           Operation         L         003 00           Strain Gage Select         L         003 00           Test for Fluids Low Maintenance Codes         P         006 00           Oil Sampling         Oil Sampling         Oil Sampling
Operation
$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Test for Fluids Low Maintenance Codes
Oil Sampling
Formagnaph D 010.00
Ferrograph P 019 00
JOAP P 018 00
Oil Servicing
AMAD/Generator/Air Turbine Starter P 017 00
APU P 016 00
Engine/VEN P 013 00
Openings, Drains and Vents, Exterior L 041 00
Operation
AMAD Ground Maintenance Mode L 021 00
APU L 021 00
Boarding Ladder L 016 00
Canopy L 016 00

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Title (P=A1-	-	VP Number C-PCM-000)
(L=A1-	F18AC	-LMM-000)
Cockpit Digital Display Indicator	L	008 00
Integrated Fuel - Engine Indicator	L	$018 \ 02$
Nose Wheelwell Digital Display Indicator	${ m L}$	003 00
Optics Cleaning, Multipurpose Display Group	${ m L}$	$047 \ 00$
Outlet Plug, Ram Air	P	$022 \ 00$
Pin		
Arresting Hook Aircraft Ground Safety	P	$023 \ 00$
Canopy Jettison Aircraft Ground Safety	P	023 00
Ejection Control Handle/Aircraft Canopy		
Jettison Aircraft Ground Safety	P	$023 \ 00$
Landing Gear Aircraft Ground Safety	P	$023 \ 00$
LAU-7() Launcher Detent Wrench Safety	P	$023 \ 00$
Main Firing Handle Safety		
Required During All Ground Operations	P	$023 \ 00$
Required During Maintenance	P	$024 \ 00$
Wing Fold Aircraft Ground Safety	P	$023 \ 00$
Pin Set		
Ejection Seat Aircraft Ground	P	$024 \ 00$
Main Landing Gear Doors Aircraft Ground		
Safety	P	$024 \ 00$
Pitot-Static Probe Aircraft Ground Servicing		
Cover	P	$022 \ 00$
Plug		
Bleed Air Exit Door	P	$022 \ 00$
Ram Air Inlet	P	022 00
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Title WP Number (P=A1-F18AC-PCM-000)

(L=A1	-F18A0	C-LMM-000
Power Application and Removal		
Electrical Power	. L	004 00
Hydraulic Power		009 00
Utility Electrical Power		013 00
Power Unit Safing, Nosewheel Steering	. P	$024 \ 00$
Preparation for APU and Engine Operation	. L	018 00
Pressure Chart, Emergency Oxygen System		
(A1-F18AC-120-300, WP121 00 or		
A1-F18AE-120-300, WP010 00)		
Priming, APU Fuel System	. L	020 00
Probe Cover, Total Temp	. P	$022\ 00$
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Proximity Switch Control Hookup	. L	007 00
Radar Liquid Cooling System Fluid Sampling	. L	$035 \ 00$
Flush, Bleed and Decontamination	. L	$035\ 00$
Refilling	. L	$035 \ 00$
Sampling, Fluid	. L	035 00
Servicing	. L	$035 \ 00$
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Radome Opening and Closing		
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Ram Air Inlet Plug		$022 \ 00$
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Flight	. P	$005 \ 00$

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•	1-F18A	WP Number C-PCM-000) C-LMM-000)
Refilling - Radar Liquid Cooling System Refueling	L	035 00
Alternate External Tank	Р	008 01
Using Electrical Power		009 00
With Engines Operating		010 00
Without Electrical Power		008 00
Refueling/Defueling - External Fuel Tank,	1	000 00
Alternate	Р	008 01
Refueling Probe Aircraft Ground Safety Lock		024 00
Relay Location		015 00
Reservoir Servicing, Hydraulic		020 00
Reset/Built-In Test		
Nose Wheelwell Digital Display Indicator	L	003 00
Residual Fuel Draining		011 02
Safe/Armed Handle, Ejection Seat		023 00
Safety Devices		
Required During All Ground Operations	P	$023 \ 00$
Required During Maintenance	P	$024 \ 00$
Safety Equipment Bag, Aircraft	P	$023 \ 00$
Safety Handle, Ground, BRU-32() Bomb Ejector		
Rack	P	$023 \ 00$
Safety Handle, Ground, BRU-33() Bomb Ejector		
Rack	P	023 00
Safety Lock		
Speed Brake Aircraft Ground	P	$024 \ 00$
Nose Landing Gear Door Aircraft Ground	P	024 00
Refueling Probe Aircraft Ground	P	$024 \ 00$

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Title WP Number (P = A1-F18AC-PCM-000)

(L=A1-F18AC-LMM-000)

`		,
Safety Lock Drive, LAU-115() Guided Missile	D	000 00
Launcher	P	023 00
Safety Pin		
Arresting Hook, Aircraft	P	$023 \ 00$
Canopy Jettison Aircraft Ground	P	$023 \ 00$
Ejection Control Handle/Aircraft Canopy Jetti-		
son Aircraft Ground	P	$023 \ 00$
Landing Gear Aircraft Ground	P	$023 \ 00$
LAU-7() Launcher Detent Wrench	P	023 00
Main Firing Handle		
Required During All Ground Operations	P	023 00
Required During Maintenance	P	024 00
Wing Fold Aircraft Ground	P	023 00
Safety Pin Set		
Ejection Seat Aircraft Ground	P	$024 \ 00$
Main Landing Gear Doors Aircraft Ground	P	$024\ 00$
Safety Release Knob, LAU-116() Guided Missile		
Launcher	P	$023 \ 00$
Safety Switch, AN/ALE-39 or AN/ALE-47	P	$023 \ 00$
Safety Switch, Gun Electrical Signal	P	$023 \ 00$
Safing		
Jacks-In-Place	${ m L}$	038 00
Nosewheel Steering Power Unit	P	024 00
Sampling, Fluid - Radar Liquid Cooling System	L	035 00
Screen, Engine Inlet Aircraft Ground Servicing	P	024 00
Sealing, Foreign Objects	L	$045 \ 00$
Sealing of Electrical Bonds	L	037 00

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`	F18AC-	P Number PCM-000) LMM-000)
Self Retaining Bolts	L	046 00
Sensing Unit Cover, TRU-209/A	P	022 00
Sensor Unit Cover, FLIR	P	022 00
Servicing	_	
AMAD Oil	Р	017 00
APU Accumulator	P	015 00
APU Oil	P	016 00
Arresting Hook Actuator	L	032 00
EMER BRAKE Accumulator	L	033 00
Engine/VEN	P	013 00
Hydraulic Reservoir	P	020 00
MLG Shock Absorber	L	030 00
MLG Tire	L	025 00
NLG Cylinder and Piston Assembly	L	031 00
NLG Tire	L	026 00
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Servicing Cover		
Pitot Static Probe	P	022 00
Head-Up Display Combiner	P	022 00
Ejection Seat	P	022 00
Laser Spot Tracker Dome	P	022 00
Servicing Screen, Engine Inlet Aircraft Ground	P	024 00
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•		WP Number AC-PCM-000) AC-LMM-000)
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Equipment	P	005 00
Specific Gravity Adjustment		009 00
Speed Brake Aircraft Ground Safety Lock	P	$024 \ 00$
Spotting/Towing/Parking		040 00
Stabilizer Support, Horizontal		$024 \ 00$
Static Charge Discharging, Windshield		
and Canopy	P	004 00
Static Grounding, Electrical		004 00
Strain Gage Select, Nose Wheelwell Digital		
Display Indicator	L	003 00
Support, Horizontal Stabilizer		024 00
Surface Lock, Flap Control		024 00
Switch, Safety, AN/ALE-39 or AN/ALE-47		023 00
Switch, Safety, Gun Electrical Signal		023 00
Tailpipe Cover		022 00
Tanks, External Fuel		
Removal and Installation (A1-F18AE-LWS	5-000)	
Transfer Test		036 00
Test/Reset, Built-In, Nose Wheelwell Digital		
Display Indicator	L	003 00
Test, External Fuel Tanks Transfer		036 00
Test, Fluids Low Maintenance Codes		006 00
Test, Fuel Leak		018 01
Tiedown, Aircraft		003 00
Tire Emergencies, Brake, Wheel and		
(A1-F18AC-LMM-020, WP004 00)		

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Title WP Number (P=A1-F18AC-PCM-000) (L=A1-F18AC-LMM-000)

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MLG	L	025  00
NLG	L	026  00
Total Temp Probe Cover	P	$022 \ 00$
Towing/Spotting/Parking	L	$040 \ 00$
TRU-209/A Sensing Unit Cover	P	$022 \ 00$
Utility Power Adapter	L	013 00
Utility (Electrical) Power Receptacle Location	L	013 00
VEN Servicing (Oil)	P	013 00
Vent Cover, Engine Bay	P	$022 \ 00$
Vents, Drains and Openings, Exterior	L	041 00
Water Wash, Engine	L	$023 \ 00$
Weight, Aircraft	L	049 00
Wheel and Tire Emergencies, Brake,		
(A1-F18AC-LMM-020, WP004 00)		
Wheel and Tire Assembly Removal and Installation		
MLG	L	$027 \ 00$
NLG	L	$029 \ 00$
Windshield		
Cleaning	P	007 00
Defrosting	P	$007 \ 00$
Deicing	P	007 00
Opening and Closing	L	$017 \ 00$
Precleaning	P	007 00
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Static Charge Discharging	P	004 00
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•		WP Number F18AC-PCM-000) F18AC-LMM-000)	
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Discharging		P	004 00
Wing Fold Aircraft Ground Safety Pin		P	023 00
Wing Folding		P	021 00
Wire Bundle EMI Shielding		L	$050 \ 00$
Work Package Index		L	001 01

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### **WORK PACKAGE INDEX**

### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

## This WP supersedes WP001 01, dated 15 April 1996.

WP Number	Title	
TPDR	List of Technical Publication Deficiency Reports Incorporated	
001 00	Alphabetical Index	
001 01	Work Package Index	
002 00	Introduction	
003 00	Operation - Nose Wheelwell Digital Display Indicator	
003 01	Operation - Nose Wheelwell Digital Display Indicator	
	F/A-18A AND F/A-18B	
003 02	Operation - Nose Wheelwell Digital Display Indicator	
	F/A-18C AND F/A-18D	
004 00	Electrical Power Application and Removal Procedures	
005 00	Electrical Power Application and Removal Tables - Control Switch	
	Checklists and GND PWR Switch Functions	
005 01	Electrical Power Application and Removal Tables - Control Switch	
	Checklists and GND PWR Switch Functions - 161353 THRU	
	163782	
005 02	Electrical Power Application and Removal Tables - Control Switch	
	Checklists and GND PWR Switch Functions - 163985 AND UP	
006 00	Electrical Power Application and Removal Circuit Breakers	
	Requirements	
007 00	Proximity Switch Control	
008 00	Set Up For Displays - Cockpit Digital Display Indicator	

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Number	Title
008 01	Set Up For Displays - Cockpit Digital Display Indicator - F/A-18A AND F/A-18B
008 02	Set Up For Displays - Cockpit Digital Display Indicator - F/A-18C AND F/A-18D
009 00	Hydraulic Power Application and Removal
010 00	Air Bleeding/Decontamination - Hydraulic System
011 00	External Ground Cooling Air Application and Removal
012 00	Hookup - Ground Intercommunication
013 00	Utility Electrical Power
014 00	Circuit Breaker Panels
014 01	Circuit Breaker Panels - F/A-18A AND F/A-18B
014 02	Circuit Breaker Panels - F/A-18C AND F/A-18D
015 00	Circuit Breaker/Relay Panels
015 01	Circuit Breaker/Relay Panels - F/A-18A AND F/A-18B
015 02	Circuit Breaker/Relay Panels - F/A-18C AND F/A-18D
016 00	Operation - Boarding Ladder and Canopy
017 00	Opening and Closing - Windshield
018 00	Preparation for Operation - APU and Engine
018 01	Fuel Leak Test
018 02	Operation - Integrated Fuel Engine Indicator
	ID-2389/A, ID-2389A/A - F/A-18C/D
019 00	Engine Runup Holdback Assembly
020 00	Priming - APU Fuel System
021 00	Operation - APU
022 00	Operation - Engine
023 00	Engine - Water Wash
025 00	Servicing - MLG Tire
026 00	Servicing - NLG Tire
027 00	MLG Wheel and Tire Assembly
028 00	IPB - MLG Wheel and Tire Assembly
029 00	NLG Wheel and Tire Assembly
030 00	Servicing - MLG Shock Absorber
030 01	Servicing - MLG Shock Absorber, 74A410820
030 02	Servicing - MLG Shock Absorber, 74A410850

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WP Number	Title	
031 00	Servicing - NLG Cylinder and Piston Assembly	
032 00	Arresting Hook Actuator Servicing	
033 00	Servicing - Emer Brake Accumulator	
034 00	Exchange - Ten Liter Liquid Oxygen Converter - 161353 THRU 164068	
035 00	Servicing - Radar Liquid Cooling System	
036 00	Transfer Test - External Fuel Tanks	
036 01	Transfer Test - External Fuel Tanks - F/A-18A AND F/A-18B	
036 02	Transfer Test - External Fuel Tanks - F/A-18C AND F/A-18D	
037 00	Electrical Bonding, Sealing and Electromagnetic Compatibility (EMC) Protection	
038 00	Jacking	
038 01	IPB - Jacking	
039 00	Hoisting	
040 00	Towing/Spotting/Parking	
041 00	Exterior Drains, Vents and Openings	
042 00	Allowable Leakage Limits	
043 00	Data Entry - Electronic Equipment Control	
044 00	Cockpit Instruments and Controls	
044 01	Cockpit Instruments and Controls - F/A-18A AND F/A-18B	
044 02	Cockpit Instruments and Controls - 163427 THRU 163782	
044 03	Cockpit Instruments and Controls - 163985 AND UP	
045 00	Foreign Object Sealing	
046 00	Self Retaining Bolts	
047 00	Cleaning - Multipurpose Display Group Optics	
048 00	Fastener and Attaching Parts Corrosion Protection	
049 00	Aircraft Weight	
050 00	Wire Bundle EMI Shielding	

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#### INTRODUCTION

### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

This WP supersedes WP002 00, dated 1 December 1998.

## 1. PURPOSE.

2. This manual has data required by line maintenance personnel for doing tasks that are repeated often on the aircraft.

# 3. REQUISITION AND AUTOMATIC DISTRIBUTION OF NAVAIR TECHNICAL MANUALS.

- 4. Procedures to be used by Naval activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100 and NAVAIRINST 5605.5.4A.
- 5. To automatically receive future changes and revisions to NAVAIR technical manuals, an activity must be established on the Automatic Distribution Requirements List (ADRL) maintained by the Naval Air Technical Data and Engineering Service Command (NATEC). To become established on the ADRL, contact your activity central technical publications librarian. If your activity does not have a library, you may establish your automatic distribution by contacting the Commanding

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Officer, NATEC, Attn: Distribution, NAS North Island, Bldg. 90, P.O. Box 357031, San Diego CA 92135-7031. Reconfirmation of these requirements is required once a year to remain on automatic distribution. Please use your NATEC assigned account number when referring to automatic distribution requirements.

6. If added or replacement copies of this manual are required with no attendant changes in the ADRL, they may be ordered by submitting a MILSTRIP requisition in accordance with NAVSUP 485 to Routing Identifier Code "NFZ". MILSTRIP requisitions can be submitted through your supply office, Navy message, or SALTS to DAAS (Defense Automated Address System), or through the DAAS or NAVSUP web sites. For assistance with a MILSTRIP requisition, contact the Naval Inventory Control Point (NAVICP) Publications and Forms Customer Service at Defense Switched Network 442-2626 or (215) 697-2626, Monday through Friday, 0700 to 1600 Eastern Time.

## 7. MANUAL ISSUE DATE.

8. The date on the title page is the copy freeze date. No additions, deletions, or changes are made after the manual issue date except last minute safety of flight or required maintenance changes. Data collected after the manual issue date will be included in later changes or revisions of the manual.

## 9. **EFFECTIVITIES.**

10. Effectivity notes on manual title pages, work package title pages, and within a work package indicate the aircraft or software program to which the data applies. If no effectivity note appears on the work package title page, the work package has the same effectivity as shown on the manual title page. The effectivity notes may use:

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a. Type, model, and series

#### NOTE

F/A-18D aircraft after bureau number 164967 was referred to as bureau number F/A-18D D-140. Now, F/A-18D aircraft after bureau number 164967 is 165409.

- b. Bureau number (tail number)
- c. Combination of type, model, series, and bureau numbers
- d. Part number or serial number
- e. Technical directive number
- f. Configuration/identification number
- 11. The table below shows examples of effectivity notes and their meanings:

## **Effectivity Note Examples**

Effectivity Note	Definition
160777 AND UP	Applicable to all F/A-18A, F/A-18B, F/A-18C and F/A-18D for bureau numbers listed.
F/A-18A, F/A-18B	Applicable to all F/A-18A and F/A-18B.

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## **Effectivity Note Examples (Continued)**

Effectivity Note	Definition
F/A-18C, F/A-18D	Applicable to all F/A-18C and F/A-18D.
F/A-18A	Applicable to all F/A-18A, but not F/A-18B, F/A-18C and F/A-18D.
F/A-18B	Applicable to all F/A-18B, but not F/A-18A, F/A-18C, and F/A-18D.
F/A-18C	Applicable to all F/A-18C, but not F/A-18A, F/A-18B, and F/A-18D.
F/A-18D	Applicable to all F/A-18D, but not F/A-18A, F/A-18B, and F/A-18C.
F/A-18A, F/A-18C	Applicable to all F/A-18A and F/A-18C, but not to F/A-18B and F/A-18D.
F/A-18B, F/A-18D	Applicable to all F/A-18B and F/A-18D, but not to F/A-18A and F/A-18C.
F/A-18A 160775, 160777 THRU 160782	Only applicable to some bureau numbers of F/A-18A. Not applicable to any F/A-18B, even if a F/A-18B bureau number is within the numbers listed.

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## **Effectivity Note Examples (Continued)**

Effectivity Note	Definition
F/A-18C 163427, 163430 THRU 163456	Only applicable to some bureau numbers of F/A-18C. Not applicable to any F/A-18D, even if a F/A-18D bureau number is within the numbers listed.
F/A-18B 160784 AND UP	Only applicable to some bureau numbers of F/A-18B. Not applicable to any F/A-18A, even if an F/A-18A bureau number is within the numbers listed.
F/A-18D 163434 THRU 163457	Only applicable to some bureau numbers of F/A-18D. Not applicable to any F/A-18C, even if a F/A-18C bureau number is within the numbers listed.
F/A-18B 160784 AND UP, F/A-18D	Applicable to some bureau numbers of F/A-18B. Not applicable to any F/A-18A, even if an F/A-18A bureau number is within the numbers listed. Also applicable to all F/A-18D aircraft.
F/A-18C, F/A-18D 163434 THRU 163457	Applicable to all F/A-18C aircraft. Applicable to some bureau numbers of F/A-18D.

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## **Effectivity Note Examples (Continued)**

Effectivity Note	Definition
F/A-18D D-140 AND UP OR F/A-18D 165409 AND UP	Applicable to all F/A-18D aircraft after bureau number 164967.
160775 THRU 160785 BEFORE F/A-18 AFC 772	Applicable to F/A-18A and F/A-18B for bureau numbers listed, before modification by technical directive.
161213 AND UP; ALSO 160775 THRU 160785 AFTER F/A-18 AFC 772	Applicable to aircraft modified during production; also applicable when affected aircraft have been modified by technical directive.
160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-X IS INSTALLED	Applicable to F/A-18A and F/A-18B for bureau numbers numbers listed if panel P/N XXXX-X is installed. (Configuration before AVC)
161213 AND UP; ALSO 160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-Y (AVC-102) IS INSTALLED	Applicable to aircraft modified during production; also applicable to aircraft components modified to the production configuration by technical directive. (Configuration after AVC)
P/N MBEU65101-9, MBEU65101-10 & MBEU65105-3	Applicable to assemblies which are interchangeable between aircraft.

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## **Effectivity Note Examples (Continued)**

Effectivity Note	Definition
ENGINE NO. 215101 THRU 215109	Applicable to assemblies which are interchangeable between aircraft, but configurations can not be identified by part number.
CONFIG/IDENT NUMBER 84A	The CONFIG/IDENT Number is the program load identification number which identifies the software program loaded in specific programmable units. Refer to A1-F18AC-SCM-000 for CONFIG/IDENT Number tables.

## 12. TECHNICAL DIRECTIVES.

13. Technical directives are documents which provide instructions to add and record retrofit configuration modification or inspection instructions to delivered aircraft, or aircraft components.

## 14. AIRFRAME CHANGE (AFC) AND AIRBORNE SOFTWARE CHANGE

(ASC). Technical directives which change configuration of aircraft structure or equipment installation, i.e. AFC, will list aircraft bureau numbers in effectivity notes and show before and after the AFC. Technical directives which change configuration of operational flight programs (OFP), i.e. ASC, will list the OFP CONFIG/IDENT NUMBER in effectivity notes and show the latest two authorized OFP programs. See AFC and ASC effectivity examples in Effectivity Note Example Table.

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15. **AIRCRAFT COMPONENT CHANGES.** Technical directives which change configuration of aircraft components are listed below:

Assisting Assessment Classes for assessment

AAC	Aviation Armament Change for armament
	equipment
ACC	Aircrew System Change for aircrew survival
	equipment
AFC	Airframe Change for aircraft structure and
	equipment
ASC	Airborne Software Change for operational flight
	programs
AVC	Avionics Change for airborne electronic
	equipment, including wiring changes
AYC	Accessory Change for mechanical systems
PPC	Power Plant Change for engines

16. Component changes will list part numbers in the effectivities. See AVC effectivity examples in Effectivity Note Example table.

## 17. RECORD OF APPLICABLE TECHNICAL DIRECTIVES.

18. The technical directives affecting this manual are listed in the Record of Applicable Technical Directives of each affected work package. Because an ASC directs all aircraft be modified within 30 days, ASC's are not listed. When all affected aircraft are modified, the before configuration is removed from the manual, and the technical directive entry is removed from the Record of Applicable Technical Directives.

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# 19. TECHNICAL PUBLICATIONS DEFICIENCY REPORT (TPDR).

- 20. The TPDR (OPNAV FORM 4790/66) is the form for reporting errors and suspected omissions in the technical manuals. The TPDR WP lists the TPDR's that are included in the current issue of the manual.
- 21. TPDR reporting procedures are in OPNAVINST 4790.2 SERIES.

## 22. QUALITY ASSURANCE PROCEDURES.

- 23. Procedures or parts of procedures which require quality assurance inspection are identified by the letters (QA) after the applicable steps. When (QA) is assigned to a step or a heading which is immediately followed by substeps, the inspection requirement is applicable to all substeps.
- 24. When doing maintenance in any area, a visual inspection of the area will be made for cracks, corrosion and security of component installation before securing the area for flight.

### 25. DIAGRAMS.

26. System schematics are in A1-F18A( )-( )-500 series manuals.

## 27. ILLUSTRATED PARTS BREAKDOWN.

28. Each illustrated parts breakdown (IPB) in this manual has a parts list and illustration for the requisition, storage, authority for use, and identification of parts. The illustration is integrated with, and supports, both the maintenance procedure and the parts list within each work package.

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29. **PART NUMBER COLUMN.** Footnote symbols in the part number column are defined following the last part listed in each parts list (also see converted part numbers, this WP).

- 30. **INDENTION.** The first entry in the description column of each parts list is the figure title. This figure title identifies the parts list with the related maintenance procedure and is shown in the first indent. All parts data required to support the specific maintenance procedure is below the figure title in the second indent.
- 31. **COMMON NAMES.** The official nomenclature in the description column may not be the name commonly used for an item. If different from the official nomenclature, the common name is shown in parentheses in the description column immediately following the official nomenclature.
- 32. **COMMERCIAL AND GOVERNMENT ENTITY CODES.** Entity code or manufacturer's name and address are shown in the Description column in parentheses after the nomenclature for the item. These codes are per the Commercial and Government Entity (CAGE) Handbook H4/H8 Series. No code indicates the item is a government standard part.
- 33. **ATTACHING PARTS.** Attaching parts are identified by (AP) after the nomenclature of the item in the description column. Attaching parts are listed immediately following the part they attach.
- 34. **SPECIAL HANDLING.** Items requiring special handling; for example liquid oxygen components, magnetic control items or on-board oxygen generating system (OBOGS) are identified by the acronym LOX for liquid oxygen, MAG for magnetic control items and OXYGEN for on-board oxygen generating system (OBOGS) in the Description column, at the extreme right side.

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35. **CONVERTED PART NUMBERS.** Some part numbers appear in the Part Number column which are different than the manufacturer's part number. These are converted part numbers. The unconverted manufacturer's part number is shown in the Description column following the manufacturer's code. Always use the part number in the Part Number column when ordering parts. If an item is not available under the listing in the Part Number column, it may be ordered using the unconverted part number found in the Description column or by using the number found on the part. Examples of special characters as they may appear in the Part Number and Description columns are shown below:

Part Number Column	Description Column	
PORM	± (Plus or Minus)	
DEG	° (Degree)	
E	e (Lower case letter)	
2	II (Roman Numeral)	
0.001	.001 (Decimal)	

- 36. **SUPERSEDED PARTS.** Superseded part numbers have been removed from the Part Number column and placed in the Description column of the superseding part (for example supersedes 74A582090-1003). This indicates that the superseded part is usable if available through salvage, but should not be requisitioned or made.
- 37. **NEXT HIGHER ASSEMBLY.** Next higher assembly (NHA) data is not shown using indention. Next higher procurable assembly (NHPA)

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number column.

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data is shown for part numbers that have a procurable NHA. The NHPA and its assigned Source, Maintenance and Recoverability (SM&R) code are in parentheses as the last entry in the Description column. Requisition the NHPA when the part listed in the Part Number column is not available from supply. The components of assemblies that require disassembly during removal from aircraft, are footnoted in the part

- 38. UNITS PER ASSEMBLY (UPA) COLUMN. This column lists the total number of each part required per assembly or subassembly and are not necessarily the total number used in the end item of equipment. The letters AR (As Required) are used for items; for example shims, when the requirement may vary.
- 39. **USABLE-ON CODES.** Applicable usable-on codes are identified on the final sheet of each parts list. No entry in the Use On column indicates parts are applicable to all configurations supported by this parts list.
- 40. ALTERNATE OR EQUIVALENT PARTS. An asterisk (\*), in the Use On column, identifies alternate parts or equivalent parts that are interchangeable. When a letter code is followed by an asterisk in the Use On column, only the parts with the same letter code are interchangeable. An alternate part may be used when preferred part is not available. The asterisk is omitted for the preferred part(s). Equivalent parts are fully interchangeable. No equivalent part is preferred over another. All equivalent parts are identified by asterisks.
- 41. **SOURCE, MAINTENANCE AND RECOVERABILITY (SM&R) CODE COLUMN.** The codes used in this column are assigned per NAVSUPINST 4423.29 SERIES which contain definitions. A dash (-) is shown in the SM&R code column when no code has been assigned. The

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Aviation Supply Office P2300 series publication is to be used for the most current SM&R Code assignment information if the validity of any SM&R Code listed in an IPB is suspect. Refer to figure 1 for SM&R code explanations.

42. **PARTS LIST INDEX MANUAL, A1-F18AC-IPB-450.** This manual has a numerical index of part numbers and a reference designation index for use with aircraft organizational maintenance manuals. When reference designations or part numbers are known, the index locates specific maintenance instructions and parts data.

# 43. NAVY (AN) STANDARD/COMMON NAME NOMENCLATURE.

44. When an item has both Navy (AN) standard and common name nomenclature assigned, the common name nomenclature will be used in text and on illustrations. Full Navy (AN) standard nomenclature will be used in the Illustrated Parts Breakdown (IPB).

## 45. MANUAL REFERENCES TO IETM.

46. The manuals listed below have been converted into an Interactive Electronic Technical Manual (IETM) format. When an IETM is available, all references to the manuals below should be directed to the IETM.

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PUBLICATION NUMBER	PUBLICATION NUMBER
A1-F18AC-120-100	A1-F18AC-440-300
A1-F18AC-120-200	A1-F18AC-450-100
A1-F18AC-120-300	A1-F18AC-450-200
A1-F18AC-120-310	A1-F18AC-450-300
A1-F18AC-130-100	A1-F18AC-510-100
A1-F18AC-130-200	A1-F18AC-510-200
A1-F18AC-130-300	A1-F18AC-510-300
A1-F18AC-130-310	A1-F18AC-560-100
A1-F18AC-130-320	A1-F18AC-560-200
A1-F18AC-240-100	A1-F18AC-560-300
A1-F18AC-240-200	A1-F18AC-570-100
A1-F18AC-240-300	A1-F18AC-570-200
A1-F18AC-270-100	A1-F18AC-570-210
A1-F18AC-270-200	A1-F18AC-570-220
A1-F18AC-270-210	A1-F18AC-570-300
A1-F18AC-270-300	A1-F18AC-570-310
A1-F18AC-270-310	A1-F18AC-570-600
A1-F18AC-410-100	A1-F18AC-600-100
A1-F18AC-410-200	A1-F18AC-600-200
A1-F18AC-410-300	A1-F18AC-600-300
A1-F18AC-410-310	A1-F18AC-730-100
A1-F18AC-420-100	A1-F18AC-730-200
A1-F18AC-420-200	A1-F18AC-730-300
A1-F18AC-420-300	A1-F18AC-742-100
A1-F18AC-420-310	A1-F18AC-742-200
A1-F18AC-440-100	A1-F18AC-742-300
A1-F18AC-440-200	A1-F18AC-743-100

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PUBLICATION NUMBER	PUBLICATION NUMBER
A1-F18AC-743-200	A1-F18AC-SRM-420
A1-F18AC-743-300	A1-F18AC-SRM-430
A1-F18AC-744-100	A1-F18AC-SRM-440
A1-F18AC-744-200	A1-F18AC-SRM-500
A1-F18AC-744-300	A1-F18AE-120-100
A1-F18AC-745-100	A1-F18AE-120-200
A1-F18AC-745-200	A1-F18AE-120-300
A1-F18AC-745-300	A1-F18AE-460-100
A1-F18AC-750-100	A1-F18AE-460-200
A1-F18AC-750-200	A1-F18AE-460-210
A1-F18AC-750-300	A1-F18AE-460-300
A1-F18AC-770-100	A1-F18AE-460-310
A1-F18AC-770-200	A1-F18AE-460-320
A1-F18AC-770-300	A1-F18AE-460-330
A1-F18AC-FIM-000	A1-F18AE-580-100
A1-F18AC-FIM-010	A1-F18AE-580-200
A1-F18AC-LMM-000	A1-F18AE-580-300
A1-F18AC-LMM-010	A1-F18AE-630-100
A1-F18AC-LMM-030	A1-F18AE-630-200
A1-F18AC-LMM-040	A1-F18AE-630-300
A1-F18AC-PCM-000	A1-F18AE-740-100
A1-F18AC-PIM-000	A1-F18AE-740-110
A1-F18AC-PIM-010	A1-F18AE-740-200
A1-F18AC-SRM-200	A1-F18AE-740-210
A1-F18AC-SRM-250	A1-F18AE-740-220
A1-F18AC-SRM-300	A1-F18AE-740-230
A1-F18AC-SRM-310	A1-F18AE-740-300

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PUBLICATION NUMBER	PUBLICATION NUMBER
A1-F18AC-SRM-410	A1-F18AE-741-100
A1-F18AE-741-200	A1-F18AE-WRM-010
A1-F18AE-741-300	A1-F18AE-WRM-020
A1-F18AE-760-100	A1-F18AE-WRM-100
A1-F18AE-760-200	A1-F18AE-WRM-200
A1-F18AE-760-300	A1-F18AE-WRM-300
A1-F18AE-FIM-100	A1-F18AE-WRM-800
A1-F18AE-FRM-000	A1-F18AF-WDM-000
A1-F18AE-MRC-000	A1-F18AF-WDM-010
A1-F18AE-MRC-250	A1-F18AF-WRM-000
A1-F18AE-MRC-300	A1-F18AF-WRM-010
A1-F18AE-SGF-000	A1-F18AG-731-100
A1-F18AE-SRM-600	A1-F18AG-731-200
A1-F18AE-SRM-601	A1-F18AG-731-300
A1-F18AE-SMR-610	A1-F18AG-745-100
A1-F18AE-SRM-611	A1-F18AG-745-200
A1-F18AE-SRM-650	A1-F18AG-745-300
A1-F18AE-SRM-651	A1-F18AG-746-100
A1-F18AE-SRM-660	A1-F18AG-746-200
A1-F18AE-SRM-661	A1-F18AG-746-300
A1-F18AE-SRM-662	A1-F18AG-LMM-050
A1-F18AE-SRM-700	A1-F18AH-710-100
A1-F18AE-SRM-710	A1-F18AH-710-200
A1-F18AE-SRM-750	A1-F18AH-710-300
A1-F18AE-SRM-760	A1-F18AH-740-100
A1-F18AE-WDM-000	A1-F18AH-740-110
A1-F18AE-WDM-010	A1-F18AH-740-200

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PUBLICATION	PUBLICATION
NUMBER	NUMBER
A1-F18AE-WRM-000 A1-F18AH-740-220 A1-F18AH-740-230 A1-F18AH-740-300 A1-F18AH-742-100 A1-F18AH-742-200 A1-F18AH-742-300	A1-F18AH-740-210

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SOURCE MAINTENANCE 1ST 2ND POSITION 3RD POSITION 4TH POSITION POS REPAIR: LOWEST USE: LOWEST LEVEL LEVEL WITH AUTHORIZED TO CAPABILITY AND MEANS OF ACQUIRING SUPPORT REMOVE/REPLACE RESOURCES TO THE ITEM. PERFORM COMPLETE REPAIR ACTION ITEM: STOCKED 0 ORG/UNIT ORG/LINIT R ITEM: STOCKED, INSURANCE 2 MINESWEEPER 2 MINESWEEPER ITEM: STOCKED, DETERIORATIVE С 3 SUBMARINES 3 SUBMARINES AUX/AMPHIB ITEM: SUPPORT, INITIAL ISSUE OF OUTFITTING & STOCKED AUX/AMPHIB 4 D DESTROYER ONLY FOR ADDITIONAL INITIAL ISSUE 5 DESTROYER, FFG 5 FFG EQUIPMENT: SUPPORT, STOCKED FOR INITIAL ISSUE OR CRUISER/ CRUISER/ 6 Е 6 **OUTFITTING OF SPECIFIED MAINTENANCE ACTIVITIES** CARRIER CARRIER Р SUPPORT. EQUIPMENT: NON-STOCKED, F PROCURED ON DEMAND ITEM: STOCKED FOR SUSTAINED SUPPORT, UNECONOMICAL G F I/AFLOAT TO PRODUCE AT A LATER TIME F I/AFLOAT ITEM: STOCKED, CONTAINS HAZMAT. HMIS/MSDS REPORTING н R TERMINAL OR OBSOLETE, REPLACED I/ASHORE TERMINAL OR OBSOLETE, NOT REPLACED G AND I/ASHORE AFLOAT ITEM: DEPOT O/H & MAINTENANCE KITS G AND Κ F ITEM: MAINTENANCE KIT, PLACE AT O.F.H.L. AFLOAT R ITEM: IN BOTH DEPOT REPAIR & MAINT, KITS I/ASHORE 0 MFR OR FAB AT UNIT LEVEL MFR OR FAB AT INTERMEDIATE/DS LEVEL Н I/ASHORE CONTRACTOR MFR OR FAB AT INTERMEDIATE/GS LEVEL K Н **FACILITY** M MFR OR FAB AT SPECIALIZED REPAIR ACTIVITY (SRA) G MFR OR FAB AT INTERMEDIATE BOTH AFLOAT AND ASHORE INTERMEDIATE MER OR FAB AT DEPOT MAINTENANCE LEVEL CONTRACTOR L SRA Κ **FACILITY** 0 ITEM: ASSEMBLED AT ORG/UNIT ITEM: ASSEMBLED AT INTERMEDIATE LEVEL - AFLOAT ITEM: ASSEMBLED AT INTERMEDIATE LEVEL - ASHORE D DEPOT Н Δ ITEM: ASSEMBLED AT SRA INTERMEDIATE L ITEM: ASSEMBLED AT INTERMEDIATE BOTH AFLOAT SRA AND ASHORE NON-Ζ ITEM: ASSEMBLED AT DEPOT MAINTENANCE LEVEL REPAIRABLE Α ITEM: REQUISITION NEXT HIGHER ASSEMBLY D DEPOT ITEM: NOT PROCURED OR STOCKED. AVAILABLE THRU В SALVAGE, REQ. BY CAGE/PART NUMBER Х INSTALLATION DRAWING, DIAGRAM, INSTRUCTION SHEET. В RECONDITION C IDENTIFY BY CAGE/PART NUMBER 7 REF ONLY D NON-STOCKED. OBTAIN VIA LOCAL PURCHASE

Figure 1. SM&R Code Explanation (Sheet 1)

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RECOVERABILITY		SERVICE OPTION		
	5th POSITION	6th POSITION		
	OSITION: WHEN UNSERVICEABLE OR CONOMICALLY REPAIRABLE, CONDEMN OR DISPOSE.	ASSIGNED TO SUPPORT ITEMS TO CONVEY SPECIFIC INFORMATION TO THE SERVICE'S LOGISTICS COMMUN OPERATING FORCES.		
0	ORG/UNIT	1	I-LEVEL	
F	I/AFLOAT	<u> </u>	1ST DEGREE	
G	I/ASHORE AND AFLOAT	2	I-LEVEL 2ND DEGREE	
	I/ASHORE AND AFLOAT	3	I-LEVEL	
н	H I/ASHORE		3RD DEGREE	
	1,7 to To Te	6	COMMERCIAL ITEM, ORGANICALLY MFR'D	
K	DLR; CONTRACTOR FACILITY	8	NON-CONSUMABLE; 2ND DEGREE ENGINE	
L	INTERMEDIATE SRA LEVEL	9	NON-CONSUMABLE; 3RD DEGREE ENGINE I-LEVEL	
			END TO END TEST	
D DL	DLR; CONDEMN OR DISPOSE AT DEPOT	J	INTER-SERVICE DLR REPAIRABLE BELOW D-LEVEL	
Z	- 1,000,000,000		PROGRESSIVE MAINTENANCE	
	NON-REPAIRABLE	R	GOLD DISC REPAIR	
А	NON-REPAIRABLE BUT REQUIRES SPECIAL HANDLING	Т	TRAINING DEVICES	

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **OPERATION - NOSE WHEELWELL DIGITAL DISPLAY INDICATOR**

	WP
Title	Number
Operation - Nose Wheelwell Digital Display Indicator	
F/A-18A and F/A-18B	$003 \ 01$
Operation - Nose Wheelwell Digital Display Indicator	
F/A-18C and F/A-18D	$003 \ 02$

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **OPERATION - NOSE WHEELWELL DIGITAL DISPLAY INDICATOR**

EFFECTIVITY: F/A-18A AND F/A-18B

## **Reference Material**

rault Reporting Manual	A1-F18AC-FRIM-00
Nose Wheelwell Digital Display Indicator	
Maintenance Code Listing	WP003 00
Maintenance Status Display and Recording	
System	A1-F18AC-580-300
Nose Wheelwell Digital Display Indicator	WP005 00

# 003 01

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## **Alphabetical Index**

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Control and Indicator Location, Figure 1	9
Fluids Test	5
Maintenance Code Display	6
Materials Required	4
Operation	4
Support Equipment Required	4

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## **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 IAFC 056	27 Mar 85	Fuel System Components Replacement and System Inspection (ECP MDA-F/A- 18-00158R1 and ECP MDA-F/A-18- 00160)	15 Aug 88	-
F/A-18 AFC 70	31 Dec 89	Motive Flow Fuel Boost Pump Pressure Switch Installation of (ECP MDA-F/A-18-0015 R28 AND ECP MDA-F/A-18- 00160)	15 Aug 88	<u>-</u>
F/A-18 AFC 90	31 May 91	Automatic Battery Cutoff (ECP MDA- F/A-18-00165R1)	15 Jan 89	-

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## **Support Equipment Required**

None

## **Materials Required**

None

## 1. OPERATION.

- 2. The nose wheelwell digital display indicator (DDI) operation is divided as below:
  - a. fluids test.
  - b. maintenance code display.
  - c. built-in test/reset.
- 3. ON 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if MMP ENABLE/BRCU switch is actuated, nose wheelwell DDI operation must be completed within 4.5 to 5.5 minutes. If operation is not completed within allowed time, MMP ENABLE/BRCU switch must be actuated again.

- 4. **FLUIDS TEST.** See figure 1. ON 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if external power is not applied or if generators are not operating, momentarily set MMP ENABLE/BRCU switch to RESET position.
- 5. On nose wheelwell DDI, do the below:
  - a. Press FLUIDS CHECK switch for approximately 1 second.
- b. Observe FLUIDS LOW indicator changes to black and white to indicate test completion and verify fluids test functioned correctly.
  - c. One or more of the below fluids may be low:
    - (1) Left engine oil
    - (2) Right engine oil
    - (3) Left AMAD oil
    - (4) Right AMAD oil
    - (5) APU oil
    - (6) Radar liquid cooling system liquid
    - (7) Fire extinguisher

- d. Read fluids low codes, by doing maintenance code display procedure in paragraph 6. Make sure maintenance code 995 is displayed to indicate test completion and to verify fluids test functioned correctly.
- 6. **MAINTENANCE CODE DISPLAY.** See figure 1. ON 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if external power is not applied or if generators are not operating, make sure MMP ENABLE/BRCU switch is momentarily set to RESET position.
- 7. Record each maintenance code when displayed. On nose wheelwell DDI, do the below:

#### NOTE

Operation of some systems in a high EMI environment with doors open, other than canopy and landing gear doors, may cause false component latches or maintenance codes. Component latches or maintenance codes that appear after system maintenance has been done should be cleared and applicable system BIT done with all doors closed.

- a. Press MAINTENANCE CODE DISPLAY switch.
- b. Observe MAINTENANCE CODE display.

- c. If data is stored in nose wheelwell DDI, maintenance codes are displayed in sequence in which failures occurred.
- (1) First code displayed is test code 888 for a maximum of 10 seconds. If MAINTENANCE CODE DISPLAY switch is not pressed within 10 seconds, the display sequence is stopped. It can be restarted, with 888 test code displayed, by pressing MAINTENANCE CODE DISPLAY switch.
- (2) Continue pressing MAINTENANCE CODE DISPLAY switch and recording codes until 000 is displayed. To repeat display sequence, press MAINTENANCE CODE DISPLAY switch.
- (3) Inspect recorded codes by pressing and holding MAINTENANCE CODE DISPLAY switch. Display sequence cycles from 888 through all stored codes to 000. Display sequence stops any time MAINTENANCE CODE DISPLAY switch is released for 10 seconds.
  - d. Interpret maintenance codes (A1-F18AC-FRM-000, WP003 00).

#### NOTE

On 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 70 maintenance code 944 is always set.

e. On 161353 THRU 161924 AFTER F/A-18 IAFC 056, ALSO 161353 THRU 163118 BEFORE F/A-18 AFC 70 if code 944 is not displayed, refer to A1-F18AC-FRM-000, WP003 00.

- 8. **BUILT-IN TEST/RESET.** See figure 1. ON 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90, if external power is not applied or if generators are not operating, make sure MMP ENABLE/BRCU switch is momentarily set to RESET position.
- 9. On nose wheelwell DDI, do the below:
  - a. Retract switch guard and press DDI BIT/RESET switch.
  - b. Observe the below occurs within approximately 30 seconds:
- (1) DDI FAIL, FLUIDS LOW, and WPN SYS FAIL indicators are black and white.
- $\left(2\right)$  MAINTENANCE CODE display is 888, 682, 341, 000, and then goes blank.
- (3) DDI FAIL, FLUIDS LOW, and WPN SYS FAIL indicators are black.
- c. If all above indications are normal, nose wheelwell DDI has passed built-in test. All maintenance codes stored in nose wheelwell DDI, signal data recorder, and digital data computer no. 1 are cleared. If all above indications are not normal, replace nose wheelwell DDI (A1-F18AC-580-300, WP005 00).

003 01
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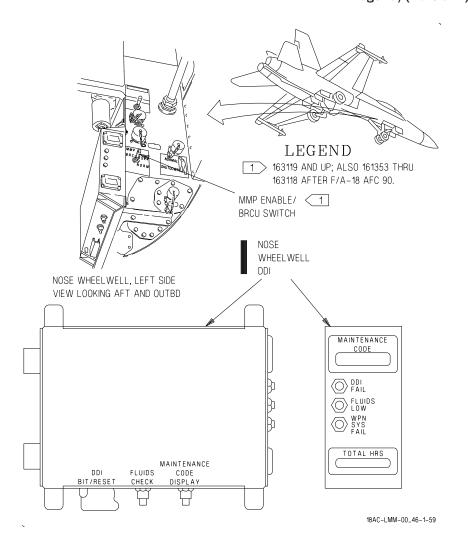


Figure 1. Control and Indicator Location

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **OPERATION - NOSE WHEELWELL DIGITAL DISPLAY INDICATOR**

EFFECTIVITY: F/A-18C AND F/A-18D

This WP supersedes WP003 02, dated 15 April 1996.

### **Reference Material**

Fault Reporting Manual	A1-F18AE-FRM-000
Nose Wheelwell Digital Display Indicator	
Maintenance Code Listing	WP003 00

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### **Record of Applicable Technical Directives**

None

### **System Required Components**

Nose Wheelwell Digital Display Indicator (DDI) Signal Data Computer

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### **Support Equipment Required**

None

### **Materials Required**

None

- 1. OPERATION.
- 2. The nose wheelwell DDI operation is divided as below:
  - a. fluids test.
  - b. maintenance code display.
  - c. built-in test/reset.
  - d. strain gage select.
- 3. If MMP ENABLE/BRCU switch is actuated, nose wheelwell DDI operation must be completed within 4.5 to 5.5 minutes. If operation is not completed within allowed time, MMP ENABLE/BRCU switch must be actuated again.
- 4. FLUIDS TEST. Fluids test monitors level of:
  - a. left engine oil
  - b. right engine oil
  - c. left AMAD oil

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- d. right AMAD oil
- e. APU oil
- f. radar liquid cooling system liquid
- g. fire extinguisher pressure
- 5. See figure 1 and do the below:
- a. If external power is not applied or if generators are not operating, momentarily set MMP ENABLE/BRCU switch to RESET position.
- b. On nose wheelwell DDI, press CONSUMABLES CHECK switch for approximately 1 second.
- 6. Read fluids test codes by doing maintenance code display procedure in paragraph 7. Make sure maintenance code 995 appears indicating satisfactory consumables check completion.
- 7. **MAINTENANCE CODE DISPLAY.** Maintenance codes appear in sequence in which failures occurred. Record each maintenance code as it appears.

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#### NOTE

Operation of some systems in a high EMI environment with doors open, other than canopy and landing gear doors, may cause false component latches or maintenance codes. Component latches or maintenance codes that appear after system maintenance has been done should be cleared and applicable system built-in test done with all doors closed.

- 8. See figure 1 and do the below:
- a. If external power is not applied or if generators are not operating, momentarily set MMP ENABLE/BRCU switch to RESET position.
  - b. On nose wheelwell DDI:
- (1) Press MAINTENANCE CODE DISPLAY switch and hold for approximately 3 seconds and observe maintenance code display for the following:
- (a) MAINTENANCE CODE display has flashing code 0 for approximately 3 seconds followed by test code 888 which appears for maximum of 10 seconds.

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#### **NOTE**

If MAINTENANCE CODE DISPLAY switch is not pressed again within 10 seconds. display sequence stops. To restart display with test code 888, press MAINTENANCE CODE DISPLAY switch again.

- (b) Continue to press MAINTENANCE CODE DISPLAY switch and record codes until code 000 appears. If required to repeat display sequence, press MAINTENANCE CODE DISPLAY switch again.
- (c) To inspect recorded codes, press and hold MAINTENANCE CODE DISPLAY switch. Display sequence cycles from test code 888 through all stored codes to code 000. To stop display sequence, release MAINTENANCE CODE DISPLAY switch for more than 10 seconds.
- (2) Interpret maintenance codes (A1-F18AE-FRM-000, WP003  $\,$  00).
- 9. BUILT-IN TEST/RESET. See figure 1 and do the below:
- a. If external power is not applied or if generators are not operating, momentarily set MMP ENABLE/BRCU switch to RESET position.
  - b. On nose wheelwell DDI:
- (1) Retract switch guard and press AMI BIT/RESET switch for approximately 3 seconds.

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- (2) Observe code 0 and in approximately 3 seconds test code 888 appears on MAINTENANCE CODE display for approximately 5 seconds and then goes blank.
- 10. If above indications do not occur, replace signal data computer (A1-F18AE-580-300. WP004 00).
- 11. Maintenance codes stored in signal data computer and digital data computer no. 1 clear if aircraft maintenance indicator DDI successfully completes built-in test.
- 12. **STRAIN GAGE SELECT.** Seven STRAIN GAGE SELECT switches select the source of aircraft fatigue strain data monitored by signal data computer.
- 13. See figure 1. On nose wheelwell DDI:
  - a. Loosen 6 captive screws and remove side cover.
- b. STRAIN GAGE SELECT switches can be set to PRIMARY or BACKUP for strain gage location below:
  - (1) S1 left wing root
  - (2) S2 left wing fold
  - (3) S3 forward fuselage
  - (4) S4 left horizontal stabilator
  - (5) S5 right horizontal stabilator
  - (6) S6 left vertical stabilizer

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(7) S7 - right vertical stabilizer

#### NOTE

If STRAIN GAGE SELECT switch settings are not known, the switch settings are recorded on the Miscellaneous History Card OPNAV 4790/25A, part of the Aircraft Log Book.

c. Set side cover in position and tighten 6 captive screws.

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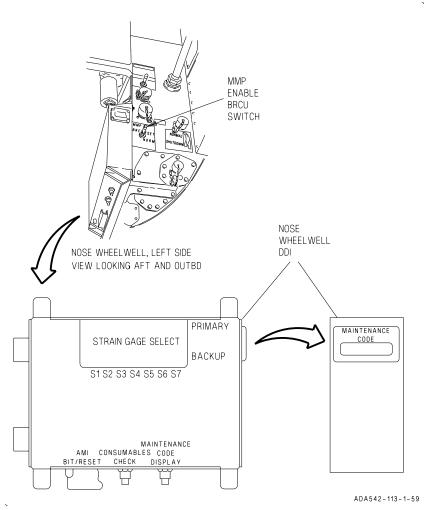


Figure 1. Control and Indicator Location

004 00

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### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **ELECTRICAL POWER APPLICATION AND REMOVAL PROCEDURES**

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

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### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorpora- tion of (ECP-MDA- F/A-18-00121).	15 Dec 86	

### **Support Equipment Required**

Type Designation	Nomenclature
62A100F8000	Mobile Electric Power Plant, NC-2A (afloat)
NC-8A-1	Mobile Electric Power Plant, (ashore)

### **Support Equipment Required (Continued)**

Part Number or Type Designation

Nomenclature

74D420042-1001

Cable Assembly (afloat)

### **Materials Required**

None

### 1. ELECTRICAL POWER APPLICATION AND REMOVAL.

- 2. External electrical power application, removal, turn on and turn off are described below:
- a. External electrical power application Hookup of power cable to aircraft external power receptacle or to cable assembly and applying power to aircraft electrical systems.
- b. External electrical power removal Turning off power plant and disconnecting power cable from aircraft external power receptacle or from cable assembly.
- c. External electrical power turn on Applies power to aircraft electrical systems assuming power plant is connected to aircraft and operating.
- d. External electrical power turn off Turns power off aircraft electrical systems without shutting down power plant, or disconnecting power cable from aircraft or from cable assembly.

- 3. INTERNAL ELECTRICAL POWER.
- 4. APU Operation-Ground Maintenance Mode Application and Removal (WP021 00).
- 5. Battery Power Application and Removal.
- 6. Battery Power Application.

# WARNING

Switches must be positioned as stated in step a. Failure to comply may cause aircraft system to be energized to an in-flight condition resulting in injury to personnel or damage to equipment.

- a. Make sure switches on BATT switch checklist are set as specified in table 1.
- b. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, on left vertical console, make sure EMERG BRK/PARK BRK control is activated.
- c. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48, if emer brake accumulator manifold pressure gage, located in nose wheelwell, indicates below 1250 psi, service emer brake accumulator WP033  $\,$ 00.
- d. On ELEC power control panel assembly, set BATT switch to ON. (Operate no longer than 5 minutes).

RESULT: BATT SW caution light comes on.

7. Battery Power Removal.



To prevent damage to battery bus contactors and/or batteries, be sure BATT switch is set to OFF and BATT SW caution light is off.

a. On ELEC power control panel assembly, set BATT switch OFF.

#### **NOTE**

Refer to WP044 00 to locate panels mentioned in table 1.

Table 1. BATT Switch Checklist

Checklist (Before Applying Battery Power)			
Location/Panel	Control Nomenclature	Control Position	
Left Console			
FUEL System Control	PROBE switch	1	
Panel			
FUEL System Control	DUMP switch	OFF	
Panel			
Intercommunication	IFF MASTER switch	NORM	
Amplifier- Control			
GEN TIE CONTROL	GEN TIE CONTROL	NORM	
Panel Assembly	switch	4	

Table 1. BATT Switch Checklist (Continued)

Checklist (Before Applying Battery Power)			
Location/Panel	Control Nomenclature	Control Position	
LH Main Instrument Panel LH Advisory and Threat Warning Indicator Panel	L FIRE warning light	Light not pressed (no barber pole)	
LH Vertical Console LH Vertical Console Control Panel Assembly RH Main Instrument Panel (Cockpit)	FLAP switch	2	
Attitude Reference Indicator	PULL TO CAGE knob	Uncaged	
RH Advisory and Threat Warning Indicator Panel	R FIRE warning light	Light not pressed (no barber pole)	
	APU FIRE warning light	Light not pressed (no barber pole)	

Table 1. BATT Switch Checklist (Continued)

Checklist (Before Applying Battery Power)			
Location/Panel	Control Nomenclature	Control Position	
Center Main Instrument Panel (Cockpit) Electronic Equipment Control Center Main Instrument Panel (Rear Cockpit) Rear Electronic Equipment Control RH Main Instrument Panel (Rear Cockpit) Rear Attitude Reference PULL TO CAGE knob Uncaged			
Indicator	TODE TO ONGE MIOS	Chagaa	
<ul> <li>Switch must correspond to position of probe. If extended, make sure safety lock is installed.</li> <li>Switch must correspond to position of flaps.</li> <li>If light is pressed (showing barber pole), make sure FEXT circuit breaker on no. 5 circuit breaker panel assembly in door 10R is open.</li> <li>162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48.</li> </ul>			

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### 8. EXTERNAL ELECTRICAL POWER APPLICATION. See figure 1.

- a. Make sure aircraft is grounded (A1-F18AC-PCM-000).
- a1. Make sure ground safty devices required are installed (A1-F18AC-PCM-000).

### **WARNING**

Circuit breakers and switches must be positioned as stated in steps b thru c. Failure to comply may cause aircraft systems to be energized to an in-flight condition resulting in injury to personnel or damage to equipment.

Before applying electrical power, be sure maintenance personnel are not doing electrical/electronic maintenance on aircraft.

#### NOTE

External electrical power application includes hookup of power cable to aircraft external power receptacle or to cable assembly and applying power to aircraft electrical systems.

b. Make sure switches on control switch checklist are set as specified in table 1, WP005 00.

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004 00 Page 8A/(8B blank)

### NOTE

This procedure assumes circuit breakers in WP006 00 are closed.

b1. If aircraft is on jacks, or simulated weight off wheels, open circuit breakers specified in WP006 00.

- c. If proximity switch control is used to simulate weight off wheels, refer to WP007  $\,$  00.
- d. If electrical power is being applied with any of the connectors listed in Table 2 disconnected, open circuit breakers shown in WP006  $\,$ 00 figure 3.

Table 2. Connectors Disconnected During Maintenance

Connector(s)	Panel Assembly/Disconnect	Location
52P-C057E	No. 7 Circuit Breaker/Relay Panel Assembly	Door 10L
52P-C057F	No. 7 Circuit Breaker/Relay Panel Assembly	Door 10L
52P-C057F &	No. 7 Cinquit Brooken/Below	Door 10L
12P-A004A	No. 7 Circuit Breaker/Relay   Panel Assembly &	Door 10L
	Landing Gear Control Unit	Door 6
52P-C057F &	No. 7 Circuit Breaker/Relay	Door 10L
12P-D004A	Panel Assembly &	D001 10L
	Landing Gear Control Unit	Door 10R
3 52P-D024D	No. 2 Circuit Breaker Panel Assembly	Door 10R
52P-D026A	No. 4 Circuit Breaker Panel Assembly	Door 10R
52P-D028	Bulkhead Disconnect	Door 10R
52P-E059	No. 3 Relay Panel Assembly	Door 13L

Table 2. Connectors Disconnected During Maintenance (Continued)

Connector(s)	Panel Assembly/Disconnect	Location		
52P-F058B & 52P-C057F	No. 2 Relay Panel Assembly & No. 7 Circuit Breaker/ Relay Panel Assembly	Door 14R Door 10L		
52P-F058B & 52P-F058C	No. 2 Relay Panel Assembly	Door 14R		
52P-F058C & 12P-A004A	No. 2 Relay Panel Assembly & Landing Gear Control Unit	Door 14R Door 6		
52P-F058C & 12P-D004A	No. 2 Relay Panel Assembly & Landing Gear Control Unit	Door 14R Door 10R		
52P-F058C 52P-J078	No. 2 Relay Panel Assembly ECS Panel Assembly	Door 14R Cockpit Right Console		
1 161353 THRU 161987 BEFORE F/A-18 AFC 48 2 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 3 161353 THRU 161359 4 161360 AND UP				

- e. Connect ground intercommunications hookup (WP012 00).
- f. Open door 9 (A1-F18AC-LMM-010).
- g. Make sure power plant output switches are off.

### WARNING

To prevent shock to personnel and damage to aircraft external electrical power system components, inspect power cable and cable assembly plugs for pin internal corrosion and damaged or missing insulator washers or sleeves from pins E and F. Also inspect the plug face surface for contamination, conductive salt residue and plug water intrusion.

# CAUTION

To prevent avionic failures caused by induced electromagnetic interference, flight deck external electrical power shall not be used unless EMI protection (cable assembly P/N 74D420042-1001) is provided.

### h. If afloat, do the substeps below:

- (1) Inspect and correctly align power cable with cable assembly and push in until fully seated.
- (2) Correctly align cable assembly with aircraft external power receptacle and push up until fully seated.

### WARNING

To prevent shock to personnel and damage to aircraft external electrical power system components, inspect power cable for pin internal corrosion and damaged or missing insulator washers or sleeves from pins E and F. Also inspect the plug face surface for contamination, conductive salt residue and plug water intrusion.

- i. If ashore, inspect and correctly align power cable plug with aircraft external power receptacle and push up until fully seated.
- j. Start power plant and wait for frequency and output voltage to stabilize. Adjust power plant output to provide 115.5  $\pm 2.5$ vac at aircraft power cable plug. This may require the power plant output to be greater than the 115.5vac midpoint voltage to compensate for power cable line loss. Make sure power plant output frequency is 400  $\pm 4$  Hz.
  - k. Set power plant output switches to ON.

#### NOTE

To prevent excessive operating time of avionics equipment, make sure GND PWR CONT circuit breaker is closed.

- l. On no. 7 circuit breaker/relay panel assembly, make sure GND PWR CONT circuit breaker is closed (WP006 00).
- m. On GND PWR control panel assembly, set EXT PWR switch to RESET and release. See figure 1.

RESULTS: EXT PWR switch sets automatically to NORM.

L GEN light comes on. R GEN light comes on. BATT SW light comes on.



To prevent discharging the fire extinguisher system, make sure the FIRE EXTGH DISCH READY light is off.

n. If FIRE EXTGH DISCH READY light is on, set the appropriate FIRE warning light switch to off.

# CAUTION

If any of the units listed below are removed, cooling air outlets must be covered to prevent loss of cooling air and possible damage to related equipment.

Electronic Equipment Control Heads Up Display Unit Digital Display Indicators Horizontal Indicator 161353 THRU 163782 Multipurpose Color Display 163985 AND UP

#### NOTE

Switches on GND PWR control panel assembly are held in the actuated position electromagnetically. (Some aircraft configurations have a three second delay.) When external electrical power is interrupted, the switches deactivate automatically and must be reset when power is restored.

- o. Determine which ground power switch(es) will be set to ON per maintenance procedure. Table 2, WP005 00, shows all systems controlled by GND PWR switches.
- p. If ground power switch(es) are required, make sure control switches are set as shown in table(s) 3 thru 10, WP005 00 before setting applicable ground power switch(es) ON. When GND PWR switch, located on GND PWR control panel assembly, use is required per maintenance procedure, set and hold applicable control switch to ON for three seconds. See figure 1.

#### NOTE

Ground power switch(es) will return to AUTO after 20 seconds if a low cooling problem exists.

- q. If ground power switches return to AUTO after 20 seconds and L GEN light remains on, apply external ground cooling air (WP011 00).
- r. If external ground cooling air was applied, reset applicable ground power switch(es).
- s. If ground power switches are not required and FCS HOT caution light comes on, set EXT PWR switch to OFF and apply external ground cooling air (WP011 00).
- t. If EXT PWR switch was set to OFF, set EXT PWR switch to RESET and release. Operate external electrical power as long as required.
- u. If proximity switch control switch(es) was set to NORM during this procedure, set proximity switch control switch(es) as stated in maintenance procedure.

### 9. EXTERNAL ELECTRICAL POWER REMOVAL. See figure 1.

#### NOTE

External electrical power removal includes turning power plant off and disconnecting power cable from aircraft external power receptacle or from cable assembly.

a. On GND PWR control panel assembly, set EXT PWR switch OFF.

RESULT: L GEN light goes out. R GEN light goes out. BATT SW light goes out.

- b. Set power plant output switches OFF.
- c. If afloat, do the substeps below:
  - (1) Disconnect cable assembly from external power receptacle.
  - (2) Disconnect cable assembly from power cable.
- d. If ashore, disconnect power cable from external power receptacle.
- e. Close and secure door 9 (A1-F18AC-LMM-010).
- f. If proximity switch control was used, refer to (WP007 00).
- g. If applied, disconnect external ground cooling air (WP011 00).
- h. Close circuit breaker(s) if opened during application of electrical power.

i. Disconnect ground intercommunications hookup (WP012 00).

#### 10. EXTERNAL ELECTRICAL POWER TURN ON.

# WARNING

Before electrical power is turned on, make sure proximity switch control switch(es) is set to NORM. Failure to comply may cause injury to personal or damage to equipment.

#### NOTE

External electrical power turn on applies power to aircraft electrical systems, assuming power plant is connected to aircraft and operating.

- a. If proximity switch control is used set MAIN GEAR, NOSE GEAR, and GEAR UPLOCK switches to NORM.
- b. On GND PWR control panel assembly, set EXT PWR switch to RESET and release. See figure 1.

RESULT: EXT PWR switch sets automatically to NORM.

L GEN light comes on.

R GEN light comes on.

BATT SW light comes on.

# CAUTION

If any of the units listed below are removed, cooling air outlets must be covered to prevent loss of cooling air and possible damage to related equipment.

Electronic Equipment Control Head Up Display Unit Digital Display Indicators Horizontal Indicator 161353 THRU 163782 Multipurpose Color Display 163985 AND UP

#### NOTE

Switches on GND PWR control panel assembly are held in the actuated position electromagnetically (some aircraft configurations have a three second delay). When external electrical power is interrupted, the switches deactivate automatically and must be reset when power is restored.

- c. Determine which ground power switch(es) will be set to ON per maintenance procedure. Table 2, WP005 00, shows all systems controlled by GND PWR switches.
- d. If ground power switch(es) are required, make sure control switches are set as shown in table(s) 3 thru 10, WP005 00 before setting applicable ground power switch(es) ON. When GND PWR switch, located on GND PWR control panel assembly, use is required per maintenance procedure, set and hold applicable control switch to ON for three seconds. See figure 1.

#### NOTE

Ground power switch(es) will return to AUTO after 20 seconds if a low cooling problem exists.

- e. If ground power switches return to AUTO after 20 seconds and L GEN light remains on, apply external ground cooling air (WP011 00).
- f. If external ground cooling air was applied, reset applicable ground power switch(es).
- g. If ground power switches are not required and FCS HOT caution light comes on, set EXT PWR switch to OFF and apply external ground cooling air (WP011 00).
- h. If EXT PWR switch was set to OFF, set EXT PWR switch to RESET and release. Operate external electrical power as long as required.
- i. If proximity switch control switch(es) was set to NORM during this procedure, set proximity switch control switch(es) as stated in maintenance procedure.

### 11. EXTERNAL ELECTRICAL POWER TURN OFF.

#### NOTE

External electrical power turn off removes power from aircraft electrical systems without shutting down power plant.

a. If proximity switch control is used, set all switches to the NORM position.

004 00

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b. On GND PWR control panel assembly, set EXT PWR switch OFF. See figure 1.

RESULT: L GEN light goes out.
R GEN light goes out.
BATT SW light goes out.

### 12. ILLUSTRATED PARTS BREAKDOWN.

13. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.



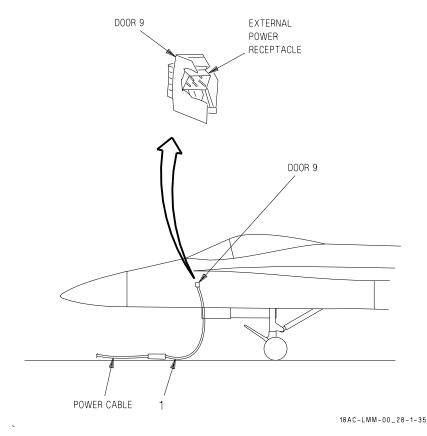


Figure 1. Electrical Power Application (Sheet 1)

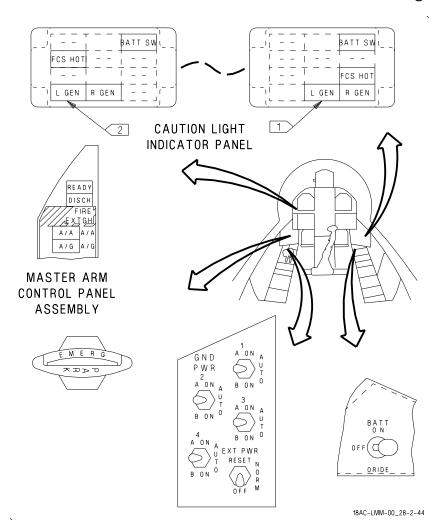
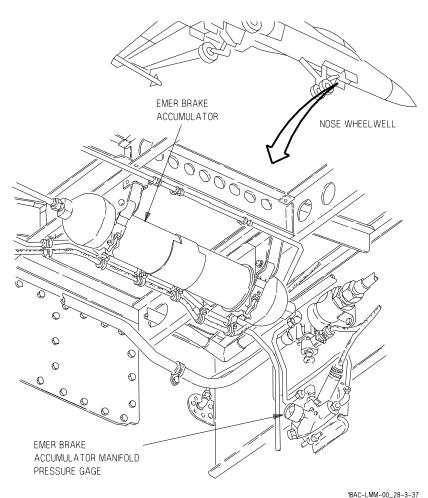


Figure 1. Electrical Power Application (Sheet 2)



.... .... ......

Figure 1. Electrical Power Application (Sheet 3)

004 00

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	PER ASSY	ON CODE	SM&R CODE
1		ELECTRICAL POWER APPLICATION  CABLE ASSEMBLY, SPECIAL  PURPOSE, ELECTRICAL - FILTER  (76301) (SUPPORT EQUIPMENT)	1		PEOGG

Figure 1. Electrical Power Application (Sheet 4)

15 April 1996

005 00

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#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

# ELECTRICAL POWER APPLICATION AND REMOVAL TABLES CONTROL SWITCH CHECKLISTS AND GND PWR SWITCH FUNCTIONS

Title	WP Number
Electrical Power Application and Removal Tables - Control Switch Checklists and GND PWR Switch Functions - 161353 THRU 163782	005 01
Electrical Power Application and Removal Tables - Control Switch Checklists and GND PWR Switch Functions -	000 01
163985 AND UP	$005 \ 02$

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#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

# ELECTRICAL POWER APPLICATION AND REMOVAL TABLES CONTROL SWITCH CHECKLISTS AND GND PWR SWITCH FUNCTIONS

**EFFECTIVITY: 161353 THRU 163782** 

### **Reference Material**

#### None

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### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Automatic AC Bus Isolation Incorpora- tion of (ECP MDA- F/A-18- 00121)	1 Dec 85	-
F/A-18 AFC 258	-	Crash Survivable Flight Incident Recorder (CSFIRS) Installation of (ECP MDA-F/A-18-00573)	1 May 00	-
F/A-18 AFC 270	-	Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), Incorporation of (ECP MDC-F/A-18-00577)	15 Jul 01	-

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### NOTE

Refer to WP044 00 to locate panels mentioned in table 1 and tables 3 thru 10.

Table 1. Control Switch Checklist

Checklist (Before Applying External Electrical Power)			
Location/Panel	Control Nomenclature	Control Position	
Left Console			
Throttle Quadrant	Right Throttle	OFF	
Throttle Quadrant	Left Throttle	OFF	
EXT LT Control Panel Assembly	INTR WING switch	NORM	
FUEL System Control Panel	EXT TANKS - WING switch	NORM	
FUEL System Control Panel	EXT TANKS - CTR switch	NORM	

Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location/Panel	Control Nomenclature	Control Position	
FUEL System Control Panel	PROBE switch	1	
FUEL System Control Panel	DUMP switch	OFF	
Intercommunication Amplifier -Control	ILS switch	UFC	
8 GEN TIE CONTROL Panel Assembly	GEN TIE CONTROL switch	NORM	
LH Main Instrument Panel LH Advisory and Threat Warning Indicator Panel	L FIRE warning light	Light not pressed (no barber pole)	
Master Arm Control Panel Assembly	MASTER switch	SAFE	
LH Vertical Console LH Vertical Console Control Panel Assembly  LDG GEAR Control	LAUNCH BAR switch ANTI SKID switch SELECT JETT switch FLAP switch LDG GEAR control handle	RETRACT OFF SAFE 2 Handle in DN	

Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location/Panel	Control Nomenclature	Control Position	
Main Instrument Panel 7 Television	Mode Select Switch	OFF	
Camera	MAN-AUTO-OFF		
Inboard Throttle Grip	Speed brake switch (cockpit only)	RETRACT	
Right Console ECS Panel Assembly	ANTI ICE-PITOT switch	AUTO	
ELEC Power Control Panel Assembly	BATT switch	OFF	
RH Main Instrument Panel (Cockpit)	Attitude Reference Indicator ARU-48/A	Uncaged	
RH Advisory and Threat Warning Indicator Panel	R FIRE warning light	Light not pressed (no barber pole)	
	APU FIRE warning light	Light not pressed (no barber pole)	

Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location/Panel	Control Nomenclature	Control Position	
RH Main Instrument Panel (Rear Cockpit) RH Vertical Console	Rear Attitude Reference Indicator ARU-48/A Arresting HOOK control handle WING FOLD control handle	Uncaged  3  4	
Switch must correspond to position of probe. If extended, make sure safety lock is installed.  Switch must agree to position of flaps.  Control must agree to position of hook.  Handle must be in SPREAD if wings are fully spread or in HOLD for all other wing positions. Make sure safety pins are installed.  Deleted  If light is pressed (showing barber pole), make sure FEXT circuit breaker on no. 5 circuit breaker panel assembly in door 10R is open.  161702 AND UP.  162394 AND UP; ALSO 161353 THRU 161987 AFTER			

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 Table 2. Systems Controlled By GND PWR Switches

Instrument/System Energized	GND PWR Switch/Position
Avionics Cooling System	1/A ON or B ON
	2/A ON or B ON
	3/A ON or B ON
	4/B ON
Air Data Computer CP-1334/A	2/B ON
Air Induction	4/B ON
ALR-67	3/A ON or B ON
Attitude Reference Indicator ARU-48/A (Cockpit and Rear Cockpit)	2/B ON
Center Digital Display Indicator (Rear Cockpit)	2/B ON
Chaff Dispenser Set AN/ALE-39	3/A ON or B ON
Computer-Transponder KIT-1A/TSEC	2/B ON
Control-Converter C-10382/A	2/B ON
Countermeasures Set AN/ALQ-126( ) or AN/ALQ-165	3/A ON or B ON
3 Crash Survivable Flight Incident Recording System	1/A ON or B ON
1 Crew Station Engine Monitor Indicator AEU-12/A (Cockpit and Rear Cockpit)	2/B ON
Digital Data Computer No. 1	1/A ON or B ON
Digital Data Computer No. 2	1/B ON
Direction Finder OA-8697( )/ARD	2/B ON
Electronic Altimeter Set AN/APN-194	2/B ON

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Table 2. Systems Controlled By GND PWR Switches (Continued)

Instrument/System Energized	GND PWR Switch/Position
Electronic Flight Control	4/B ON
Forward Looking Infrared System	3/B ON
Head-Up Display Unit AN/AVQ-28 or AN/AVQ-32	2/A ON or B ON
Horizontal Indicator IP-1350A (Cockpit)	2/A ON or B ON
Inertial Navigation System	2/A ON or B ON
Integrated Fuel-Engine Indicator ID-2389/A (Cockpit and Rear Cockpit)	2/B ON
Intercommunication Amplifier-Control AM-6979/A or AM-7360/A	4/A ON or B ON
Interference Blanker MX-9965/A	3/A ON or B ON
Laser Detector Tracker System	3/B ON
Left Digital Display Indicator (Cockpit and Rear Cockpit)	1/A ON or B ON
Liquid Oxygen Quantity Indicator GMU-75/A and GMU-76/A (Cockpit and Rear Cockpit)	3/A ON or B ON
4 Multifunctional Information Distribution System (MIDS)	2/B ON
N <sub>2</sub> Lockup System (Engine)	4/B ON
Radar Set AN/APG-65	2/A ON or B ON
Right Digital Display Indicator (Cockpit and Rear Cockpit)	2/A ON or B ON
Skid Control System Control Box	3/A ON or B ON

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Table 2. Systems Controlled By GND PWR Switches (Continued)

Instrument/System Energized	GND PWR Switch/Position
2 Signal Data Computer CP-1726/ASQ-194	1/A ON or B ON
Signal Data Recorder RO-508/ASM-612	1/A ON or B ON

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Table 2. Systems Controlled By GND PWR Switches (Continued)

Instrument/System Energized	GND PWR Switch/Position
Standby Pressure Altimeter AAU-39/A (Cockpit and Rear Cockpit)	2/B ON
Stores Management System	3/B ON
Strike Camera System	3/B ON
VHF/UHF Communication System	2/B ON
Wing Fold System	4/B ON
LEGEND	
1 F/A-18A AND F/A-18B	
2 F/A-18C AND F/A-18D	

- → 163429 THRU 163782 AFTER F/A-18 AFC 258
- 4 163427 THRU 163782 AFTER F/A-18 AFC 270

Table 3. GND PWR Control Panel Assembly - Switch 1, In A ON Position Checklist

Checklist (Before setting 1 switch to A ON position)				
Contro	ol Location	Control Nonconcleture	Control	
Area	Panel	Control Nomenclature	Position	
Left Main Instrument Panel	Left Digital Display Indicator	power switch	OFF	

Table 3. GND PWR Control Panel Assembly - Switch 1, In A ON Position Checklist (Continued)

Checklist (Before setting 1 switch to A ON position)			
Control Location			Control
Area	Panel	Control Nomenclature	Position
Rear Cockpit, Left Main Instrument Panel	Rear Left Digi- tal Display Indicator	power switch	OFF

Table 4. GND PWR Control Panel Assembly - Switch 1, In B ON Position Checklist

Checklist (Before setting 1 switch to B ON position)			
Contro	ol Location	- Control Nomenclature	Control Position
Area	Panel		
Left Main Instrument Panel	Left Digital Display Indicator	power switch	OFF

Table 4. GND PWR Control Panel Assembly - Switch 1, In B ON Position Checklist (Continued)

Checklist (Before setting 1 switch to B ON position)			
Control Location			Control
Area	Panel	Control Nomenclature	Position
Rear Cockpit, Left Main Instrument Panel	Rear Left Digital Display Indicator	power switch	OFF

Table 5. GND PWR Control Panel Assembly- Switch 2, In A ON Position Checklist

Checklist (Before setting 2 switch to A ON position)			
Control Location		Control Nomenclature	Control
Area	Panel	Control Nomenciature	Position
Right Main Instrument Panel	Right Digital Display Indicator	power switch	OFF

Table 5. GND PWR Control Panel Assembly- Switch 2, In A ON Position Checklist (Continued)

Checl	Checklist (Before setting 2 switch to A ON position)			
Control Location			Control	
Area	Panel	Control Nomenclature	Position	
Rear Cockpit, Right Main Instrument Panel	Rear Right Digital Display Indicator	power switch	OFF	
Center Main Instrument Panel	Head-Up Display Unit AN/AVQ-28	HUD SYM-BRT switch	OFF	
Center Main Instrument Panel	Horizontal Indicator IP-1350/A	OFF/NIGHT/DAY switch	OFF	
Right Console	SNSR Pod Control Box Panel Assembly	RADAR switch	OFF	
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF	

Table 6. GND PWR Control Panel Assembly - Switch 2, In B ON Position Checklist

Checklist (Before setting 2 switch to B ON position)			
Control Location			Control
Area	Panel	Control Nomenclature	Position
Right Main Instrument Panel	Right Digital Display Indicator	power switch	OFF
Rear Cockpit, Right Main Instrument Panel	Rear Right Digital Display Indicator	power switch	OFF
Center Main Instrument Panel	Head-Up Display Unit AN/AVQ-28	HUD SYM-BRT switch	OFF
Center Main Instrument Panel	Horizontal Indicator IP-1350/A	OFF/NIGHT/DAY switch	OFF
Rear Cockpit, Center Main Instrument Panel	Rear Cockpit Digital Display Indicator	power switch	OFF

Table 6. GND PWR Control Panel Assembly - Switch 2, In B ON Position Checklist (Continued)

Checklist (Before setting 2 switch to B ON position)				
Control Location		Control Names alatura	Control	
Area	Panel	Control Nomenclature	Position	
Center Main Instrument Panel	Electronic Equipment Control	ADF switch COMM 1 - VOL Control COMM 2 - VOL Control	OFF OFF OFF	
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF	
Left Console	Intercommunication Amplifier- Control AM-6979/A	IFF MASTER switch G XMT switch	NORM OFF	
RH Vertical Console	Height Indicator	PUSH TO TEST switch	OFF (fully ccw)	
Rear Cockpit, Center Main Instrument Panel	Rear Electronic Equipment Control	COMM 1 - VOL Control COMM 2 - VOL Control	OFF OFF	

Table 7. GND PWR Control Panel Assembly - Switch 3, In A ON Position Checklist

Checklist (Before setting 3 switch to A ON position)				
Control Location		Control Nomenclature	Control	
Area	Panel	Control Nomenciature	Position	
LH Vertical Console	LH Vertical Console Control Panel Assembly	ANTI SKID switch	OFF	
Center Console	ECM Control Panel Assembly	DISPENSER select switch ECM mode switch	OFF OFF	

Table 8. GND PWR Control Panel Assembly - Switch 3, In B ON Position Checklist

Checklist (Before setting 3 switch to B ON position)				
Contro	ol Location	Control Nomenalatura	Control Position	
Area	Panel	Control Nomenclature		
LH Vertical Console	LH Vertical Console Control Panel Assembly	ANTI SKID switch	OFF	

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Table 8. GND PWR Control Panel Assembly - Switch 3, In B ON Position Checklist (Continued)

Checklist (Before setting 3 switch to B ON position)				
Control Location Control				
Area	Panel	Control Nomenclature	Position	
Right Console	SNSR Pod Control Box Panel Assembly	FLIR LST/CAM	OFF OFF	

Table 9. GND PWR Control Panel Assembly - Switch 4, In A ON Position Checklist

Checklist (Before setting 4 switch to A ON position)				
Control Location Control Nomencleture Contro				
Area	Panel	Control Nomenclature		
Right Console	KY-58 Control Panel Assembly	OFF/ON/TD control	OFF	

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Table 10. GND PWR Control Panel Assembly - Switch 4, In B ON Position Checklist

Checklist (Before setting 4 switch to B ON position)				
Control Location		O to - I No I - to	Control	
Area	Panel	Control Nomenclature	Position	
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF	
Right Console	KY-58 Control Panel Assembly	OFF/ON/TD Control	OFF	

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#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

# ELECTRICAL POWER APPLICATION AND REMOVAL TABLES CONTROL SWITCH CHECKLISTS AND GND PWR SWITCH FUNCTIONS

**EFFECTIVITY: 163985 AND UP** 

### Reference Material

None

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### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 126	-	136779-1 Signal Data Recording Set, AN/ASH-38, (DFIRS) Addition of (ECP MDA-F/A-18- 00321R1C1)	15 Mar 94	-
F/A-18 AFC 211	-	AN/APG-65 Radar, Replacement with AN/APG-73 (ECP MDA-F/A-18-00508)	1 Jul 95	-

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### **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 236	-	AN/APX-111 (V) Combined Interrogator/ Transponder (CIT) Identification Friend or Foe (IFF) Sys- tem, Retrofit of (WUC 653D0) (ECP MDA-F/A-18- 00520R1)	1 May 00	-
F/A-18 AFC 258	-	Crash Survivable Flight Incident Recorder (CSFIRS) Installation of (ECP MDA-F/A-18-00573)	1 May 00	-
F/A-18 AFC 270	-	Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), Incorporation of (ECP MDC-F/A-18-00577)	15 Jul 01	-

### **NOTE**

Refer to WP044 00 to locate panels mentioned in table 1 and tables 3 thru 10.

Table 1. Control Switch Checklist

Checklist (Before Applying External Electrical Power)		
Location/Panel	Control Nomenclature	Control Position
Left Console		
Throttle Quadrant	Right Throttle	OFF
Throttle Quadrant	Left Throttle	OFF
EXT LT Control	INTR WING switch	NORM
Panel Assembly		
FUEL System	EXT TANKS - WING	NORM
Control Panel	switch	
FUEL System	EXT TANKS - CTR	NORM
Control Panel	switch	
FUEL System	PROBE switch	1
Control Panel		
FUEL System	DUMP switch	OFF
Control Panel		
Intercommunication	ILS switch	UFC
Amplifier -		
Control		
GEN TIE	GEN TIE	NORM
CONTROL Panel	CONTROL switch	
Assembly		

Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location/Panel Control Nomenclature		Control Position	
LH Main Instrument Panel LH Advisory and Threat Warning Indicator Panel	L FIRE warning light	Light not pressed (no barber pole)	
Master Arm Control Panel Assembly LH Vertical Console	MASTER switch	6 SAFE	
LH Vertical Console Control Panel Assembly	LAUNCH BAR switch ANTI SKID switch SELECT JETT switch FLAP switch	RETRACT OFF SAFE 2	
LDG GEAR Control	LDG GEAR control handle	Handle in DN	
Main Instrument Panel Television Camera	Mode Select Switch MAN-AUTO-OFF	OFF	
Inboard Throttle Grip	Speed brake switch (cockpit only)	5	

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Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location/Panel	Location/Panel Control Nomenclature		
Right Console			
ECS Panel	ANTI ICE-PITOT	AUTO	
Assembly	switch		
ELEC Power Control	BATT switch	OFF	
Panel Assembly			
RH Main Instrument Panel			
(Cockpit)	Attitude Reference	Uncaged	
	Indicator		
RH Advisory	R FIRE warning light	Light not	
and Threat		pressed (no	
Warning		barber	
Indicator		pole)	
Panel		6	
	APU FIRE warning	Light not	
	light	pressed (no	
		barber	
		pole)	
		6	
RH Main Instrument	Rear Attitude Refer-	Uncaged	
Panel (Rear Cockpit)	ence Indicator		
RH Vertical Console	Arresting HOOK	3	
	control handle		
	WING FOLD control	4	
	handle		

Table 1. Control Switch Checklist (Continued)

Checklist (Before Applying External Electrical Power)			
Location / Panel		Control Position	
<del>_</del>	Switch must correspond to position of probe. If extended, make sure safety lock is installed.		
Switch must agree to p	osition of flaps.		
3 Control must agree to position of hook.			
Handle must be in SPREAD if wings are fully spread or in HOLD for all other wing positions. Make sure safety pins are installed.			
Switch must be in RETRACT if speed brake is retracted or in HOLD if speed brake is extended. Make sure safety lock is installed if speed brake is extended.			
6 If light is pressed (showing barber pole), make sure FEXT circuit breaker on no. 5 circuit breaker panel assembly in door 10R is open.			

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Table 2. Systems Controlled By GND PWR Switches

Instrument/System Energized	GND PWR Switch/Position
Air Data Computer	2/B ON
Air Induction	4/B ON
ALR-67	3/A ON or B ON
Attitude Reference Indicator	
(Cockpit and Rear Cockpit)	2/B ON
Avionics Cooling System	1/A ON or B ON
	2/A ON or B ON
	3/A ON or B ON
	4/B ON
1 Avionics Cooling System	2/A ON or B ON
(Upper Equipment Bay)	
8 Chaff Dispenser Set AN/ALE-39	3/A ON or B ON
9 Chaff Dispenser Set AN/ALE-47	3/A ON or B ON
Combined Interrogator Transponder	2/B ON
12 Computer-Transponder	2/B ON
KIT-1A/TSEC	
Control-Converter	2/B ON
Countermeasures Set AN/ALQ-126 or	3/A ON or B ON
AN/ALQ-165	
14 Crash Survivable Flight Incident	1/A ON or B ON
Recording System	
Deployable Flight Incident	1/A ON or B ON
Recording System	
Deployable Flight Incident	3/A ON or B ON
Recording System	
Digital Data Computer No. 1	1/A ON or B ON
Digital Data Computer No. 2	1/B ON

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Table 2. Systems Controlled By GND PWR Switches (Continued)

Instrument/System Energized	GND PWR Switch/Position
Digital Map Set AN/ASQ-196	2/A ON or B ON
Direction Finder	2/B ON
Electronic Altimeter Set AN/APN-194	2/B ON
Electronic Flight Control	4/B ON
Forward Looking Infrared System	3/B ON
Global Positioning System	2/A ON or B ON
Head-Up Display Unit	2/A ON or B ON
Inertial Navigation System	2/A ON or B ON
Integrated Fuel-Engine Indicator	2/B ON
(Cockpit and Rear Cockpit)	
Intercommunication Amplifier-Control	4/A ON or B ON
Interference Blanker	3/A ON or B ON
Laser Detector Tracker System	3/B ON
Left Digital Display Indicator (Cockpit and	1/A ON or B ON
Rear Cockpit)	
10 Liquid Oxygen Quality Indicator	3/A ON or B ON
(Cockpit and Rear Cockpit)	
15 Multifunctional Information	2/B ON
Distribution System (MIDS)	
Multipurpose Color Display (Cockpit and	2/A ON or B ON
Rear Cockpit)	
$N_2$ Lockup System (Engine)	4/B ON
11 On-Board Oxygen Generating System (OBOGS)	3/A ON or B ON
Radar Set AN/APG-65	2/A ON or B ON
Radar Set AN/APG-73	2/A ON or B ON
Recce Provisions	1/B ON

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# Table 2. Systems Controlled By GND PWR Switches (Continued)

Instrument/System Energized	GND PWR Switch/Position
Right Digital Display Indicator (Cockpit and Rear Cockpit)	2/A ON or B ON
Skid Control System Control Box	3/A ON or B ON
Signal Data Computer	1/A ON or B ON
Standby Pressure Altimeter (Cockpit and Rear Cockpit)	2/B ON
Stores Management System	3/B ON
Strike Camera System	3/B ON

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# Table 2. Systems Controlled By GND PWR Switches (Continued)

(Continuou)			
Instrument/System Energized	GND PWR Switch/Position		
VHF/UHF Communication System Wing Fold System	2/B ON 4/B ON		
1 F/A-18C 2 164627 THRU 164724 BEFORE F/A- 3 F/A-18D 164279 AND UP 4 164725 AND UP; ALSO 164627 THR F/A-18 AFC 126 5 163985 THRU 164279; ALSO 164627 BEFORE F/A-18 AFC 211 6 164898 AND UP; ALSO 164627 THR F/A-18 AFC 211 7 164945 AND UP 8 163985 THRU 164980 9 165171 AND UP 10 163985 THRU 164068 11 164196 AND UP 12 163985 THRU 165221 BEFORE F/A- 13 165222 AND UP; ALSO 163985 THR F/A-18 AFC 236 14 163985 THRU 164279 AFTER F/A-1	U 164724 AFTER THRU 164897 U 164897 AFTER -18 AFC 236 U 165221 AFTER		
<u>15</u> ► AFTER F/A-18 AFC 270			

Table 3. GND PWR Control Panel Assembly - Switch 1, In A ON Position Checklist

Checklist (Before setting 1 switch to A ON position)			
Control Location		Control	Control
Area	Panel	Nomencla- ture	Position
Left Main Instrument Panel	Left Digital Display Indicator	power switch	OFF
Rear Cockpit, Left Main Instrument Panel	Rear Left Digital Display Indicator	power switch	OFF

Table 4. GND PWR Control Panel Assembly - Switch 1, In B ON Position Checklist

Checklist (Before setting 1 switch to B ON position)			
Control Location Control No- Control			Control
Area	Panel	menclature	Position
Left Main Instrument Panel	Left Digital Display Indicator	power switch	OFF

Table 4. GND PWR Control Panel Assembly - Switch 1, In B ON Position Checklist (Continued)

Checklist (Before setting 1 switch to B ON position)			
Control Location		Control No-	Control
Area	Panel	menclature	Position
Rear Cockpit, Left Main Instrument Panel	Rear Left Digital Display Indicator	power switch	OFF

Table 5. GND PWR Control Panel Assembly- Switch 2, In A ON Position Checklist

Checklist (Before setting 2 switch to A ON position)			
Control Location		Control No-	Control
Area	Panel	menclature	Position
Right Main Instrument Panel	Right Digital Display Indicator	power switch	OFF

Table 5. GND PWR Control Panel Assembly- Switch 2, In A ON Position Checklist (Continued)

Checklist (Before setting 2 switch to A ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
Rear Cockpit, Right Main Instrument Panel	Rear Right Digital Display Indicator	power switch	OFF	
Center Main Instrument Panel	Head-Up Display Unit	HUD SYM-BRT switch	OFF	
1 Center Main Instrument Panel	Multipurpose Color Display	OFF/NIGHT switch	OFF	
Rear Cockpit, Center Main Instrument Panel	Rear Multipurpose Color Display	OFF/NIGHT switch	OFF	

Table 5. GND PWR Control Panel Assembly- Switch 2, In A ON Position Checklist (Continued)

Checklist (Before setting 2 switch to A ON position)			
Control Location		Control No-	Control
Area	Panel	menclature	Position
Right Console	SNSR Pod Control Box Panel Assembly	RADAR switch	OFF
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF
1 F/A-1			

2 F/A-18D

Table 6. GND PWR Control Panel Assembly - Switch 2, In B ON Position Checklist

III B OIL I OSICION ONCCRIISC				
Checklist (Before setting 2 switch to B ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
Right Main Instrument Panel	Right Digital Display Indicator	power switch	OFF	
Rear Cockpit, Right Main Instrument Panel	Rear Right Digital Display Indicator	power switch	OFF	
Center Main Instrument Panel	Head-Up Display Unit	HUD SYM-BRT switch	OFF	
1 Center Main Instrument Panel	Multipurpose Color Display	OFF/NIGHT switch	OFF	

Table 6. GND PWR Control Panel Assembly - Switch 2, In B ON Position Checklist (Continued)

Checklist (Before setting 2 switch to B ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
Rear Cockpit, Center Main Instrument Panel	Rear Multipurpose Color Display	OFF/NIGHT switch	OFF	
Rear Cockpit, Center Main Instrument Panel	Rear Cockpit Digital Display Indicator	power switch	OFF	
Center Main Instrument Panel	Electronic Equipment Control	ADF switch COMM 1 - VOL Control COMM 2 - VOL Control	OFF OFF	
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF	

Table 6. GND PWR Control Panel Assembly - Switch 2, In B ON Position Checklist (Continued)

Checklist (Before setting 2 switch to B ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
Left Console	Intercommunication Amplifier- Control	IFF MASTER switch G XMT switch	NORM OFF	
RH Vertical Console	Height Indicator	PUSH TO TEST switch	OFF (fully ccw)	
Rear Cockpit, Center Main Instrument Panel	Rear Electronic Equipment Control	COMM 1 - VOL Control COMM 2 - VOL Control	OFF OFF	
1 F/A-18C				
2 F/A-18D				

Table 7. GND PWR Control Panel Assembly - Switch 3, In A ON Position Checklist

Checklist (Before setting 3 switch to A ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
LH Vertical Console	LH Vertical Console Control Panel Assem- bly	ANTI SKID switch	OFF	
Center Console	ECM Control Panel Assembly	DISPENSER select switch ECM mode switch	OFF OFF	
LH Console	OBOGS Control Panel Assembly	OBOGS control switch	OFF	

Table 8. GND PWR Control Panel Assembly - Switch 3, In B ON Position Checklist

Checklist (Before setting 3 switch to B ON position)				
Control Location		Control No-	Control	
Area	Panel	menclature	Position	
LH Vertical Console	LH Vertical Console Control Panel Assem- bly	ANTI SKID switch	OFF	
Right Console	SNSR Pod Control Box Panel Assembly	FLIR LST/CAM	OFF OFF	
LH Console	OBOGS Control Panel Assembly	OBOGS control switch	OFF	

Table 9. GND PWR Control Panel Assembly - Switch 4, In A ON Position Checklist

Checklist (Before setting 4 switch to A ON position)			
Control Location Control No- Control			Control
Area	Panel	menclature Posit	
Right Console KY-58 Control Panel Assembly		OFF/ON/TD control	OFF

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Table 10. GND PWR Control Panel Assembly - Switch 4, In B ON Position Checklist

Checklist (Before setting 4 switch to B ON position)			
Control Location			Control
Area	Panel	Control Nomenclature	Position
Right Console	SNSR Pod Control Box Panel Assembly	INS mode switch	OFF
Right Con- sole	KY-58 Control Panel Assembly	OFF/ON/TD Control	OFF

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#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

## ELECTRICAL POWER APPLICATION AND REMOVAL CIRCUIT BREAKERS REQUIREMENTS

#### **Reference Material**

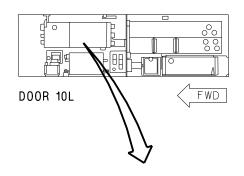
None

#### **Alphabetical Index**

Subject	Page No
Circuit Breakers Required To	
Be Closed, Figure 1	2
Circuit Breakers Required To	
Be Open During Maintenance, Figure 3	6
Circuit Breakers Required To	
Be Open During Weight Off Wheels, Figure 2	5

#### **Record of Applicable Technical Directives**

None



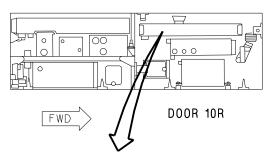
#### LEGEND

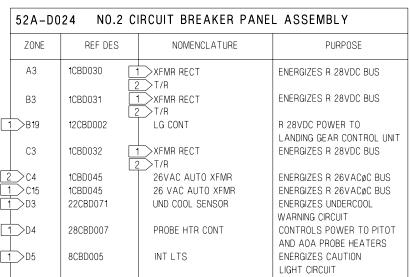
- 1 > 161353 THRU 161359.
- 2 > 161360 AND UP.
- 3 162394 AND UP; ALSO 161353 THRU 161987 AFTER F18 AFC 48.
- 4. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010.

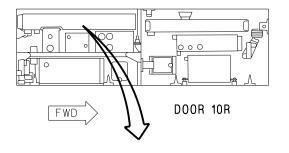
52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCL A TURE	PURPOSE	
3 A 10	1CBC147	BUS TIE	ENERGIZES CONTROL CIRCUIT	
B6	1CBC088	UTIL PWR REC	TO POWER R 115 VAC BUSES ENERGIZES DC UTILITY	
D10	1CBC029	XFMR RECT	POWER RECEPTACLE ENERGIZES L AND ESS	
D9	1CBC087	UTIL PWR REC	28VDC BUSES ENERGIZES AC UTILITY	
E10	1CBC028	XFMR RECT	POWER RECEPTACLE ENERGIZES L AND ESS	
E9	1CBC086	UTIL PWR REC	28VDC BUSES ENERGIZES AC UTILITY	
F10	1CBC027	XFMR RECT	POWER RECEPTACLE ENERGIZES L AND ESS	
F9	1CBC085	UTIL PWR REC	28VDC BUSES ENERGIZES AC UTILITY POWER RECEPTACLE	

18 A C - L M M - 00 \_ 30 - 1 - 44

Figure 1. Circuit Breakers Required To Be Closed (Sheet 1)





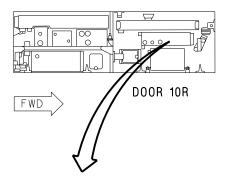


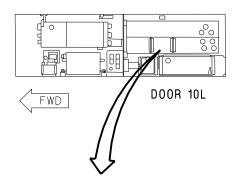
	52A-D026 NO.4 CIRCUIT BREAKER PANEL ASSEMBLY				
	ZONE	REF DES	NOMENCL A TURE	PURPOSE	
2	<b>&gt;</b> C7	22CBD071	UND COOL SENSOR	ENERGIZES UNDERCOOL WARNING CIRCUIT	
2	C10	8CBD005	INT LTS	ENERGIZES CAUTION LIGHT CIRCUIT	
2	D1	12CBD002	LDG CONT	R 28VDC POWER TO LANDING GEAR CONTROL UNIT	
2	D8	28CBD007	PROBE HTR CONT	CONTROLS POWER TO PITOT AND AOA PROBE HEATERS	

18AC-LMM-00\_30-2-49

Figure 1. Circuit Breakers Required To Be Closed (Sheet 2)

Figure 1. Figure 1.





52A-D092 NO		0.5 CIRCUIT BREAKER PANEL ASSEMBLY	
ZONE	REF DES	NOMENCLATURE	PURPOSE
A16	8CBD003	1 ANN LTS 2 INT LTS	ENERGIZES CAUTION LIGHT CIRCUIT
C10	12CBD071	RMG RLY CONT	ESS 24/28VDC POWER TO LANDING GEAR CONTROL UNIT

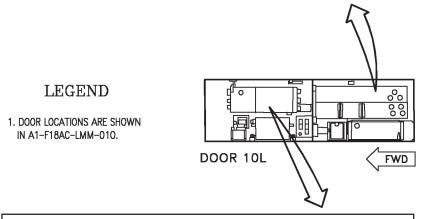
52A-C057 NO.7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	PURPOSE	
B6	1CBC048	GND PWR CONT	ENERGIZED GROUND POWER CONTROL CIRCUITS	

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Figure 1. Circuit Breakers Required To Be Closed (Sheet 3)

Figure 1. Figure 1.

52A-C057 NO.7 CIRCUIT BREAKER/RELAY PANEL ASSEMBL				
ZONE	ref des	NOMENCLATURE	PURPOSE	
C21	28CBC005	TOT TEMP SENS P HTR	REMOVES HEATER CURRENT	

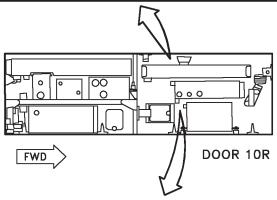


52A-C159 NO.8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	PURPOSE	
A6	5CBC101		to prevent fuel tanks pressurizing and venting fuel	

18AC-LMM-00-(27-1)C-CATI

Figure 2. Circuit Breakers Required To Be Open During Weight Off Wheels

52A-D024 NO.2 CIRCUIT		NO.2 CIRCUIT BREAK	ER PANEL ASSEMBLY
ZONE	REF DES	NOMENCLATURE	PURPOSE
A4 B4	28CBD004 28CBD002	r aoa p htr R pitot p htr	REMOVE HEATER CURRENT REMOVE HEATER CURRENT



52A-D092		D.5 CIRCUIT BREAKE	R PANEL ASSEMBLY
ZONE	ref des	NOMENCLATURE	PURPOSE
B17	4CBD100	FEXT	DEENERGIZES FIRE EXTINGUISHER CIRCUIT TO PREVENT INADVERTANT DISCHARGE

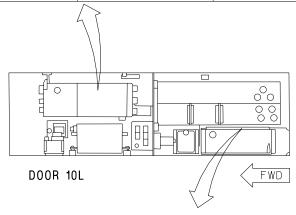
18AC-LMM-00-(99-1)A-CATI

Figure 3. Circuit Breakers Required To Be Open During Maintenance (Sheet 1)

006 00

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52A-0	C159 NO.8 CIF	RCUIT BREAKER/RELAY	PANEL ASSEMBLY
ZONE	REF DES	NOMENCLATURE	PURPOSE
D1	2CBC007	APU PRIME	TO PREVENT INADVERTENT START OF APU ON DECK
E2	2CBC001	APU	TO PREVENT INADVERTENT START OF APU ON DECK



52A-C057 NO.7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCL A TURE	PURPOSE	
A21 B21 C21 C24	28CBC003 28CBC001 28CBC005 7CBC035	L AOA PROBE HTR L PITOT PROBE HTR TOT TEMP SENS P HTR STROBE LTS	REMOVE HEATER CURRENT REMOVE HEATER CURRENT REMOVE HEATER CURRENT DEENERGIZES STROBE LIGHTS	

18AC-LMM-00\_99-2-59

Figure 3. Circuit Breakers Required To Be Open During Maintenance (Sheet 2)

007 00

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### PROXIMITY SWITCH CONTROL

#### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

#### **Alphabetical Index**

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Illustrated Parts Breakdown	9
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Proximity Switch Control, Figure 1	13
Proximity Switch Control Safety Considerations,	
Table 1	10

## A1-F18AC-LMM-000

## 007 00

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## Alphabetical Index (Continued)

Subject	Page No.
Removal	8
Support Equipment Required	2

### **Record of Applicable Technical Directives**

None

#### **Support Equipment Required**

Part Number or Type Designation	Nomenclature
74D420030-1001	Proximity Switch Control

#### **Materials Required**

None

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#### 1. HOOKUP.

- a. Make sure external electrical power is not turned on (WP004 00).
- a1. Open doors 10L/R (A1-F18AC-LMM-010).

## WARNING

Before connecting electrical connector of proximity switch control to aircraft, make sure proximity switch control switches are set to NORM. Failure to comply may cause damage to equipment or injury to personnel.

b. Set all switches on proximity switch control (2, figure 1) to NORM.



Be sure PROBE HTR CONT and GND PWR CONT circuit breakers specified in (WP006 00) are closed to prevent heating of pitot and AOA probes.

c. Be sure PROBE HTR CONT and GND PWR CONT circuit breakers specified in (WP006  $\,$  00) are closed.

# CAUTION

Be sure TOT TEMP SENS P HTR circuit breaker specified in (WP006 00) is open to prevent heating of total temperature probe.

d. Open TOT TEMP SENS P HTR circuit breaker specified in (WP006  $\,$ 00).



Be sure FUEL TK PRESS circuit breaker specified in (WP006 00) is open to prevent fuel tank pressurization and venting.

- e. Open FUEL TK PRESS circuit breaker specified in (WP006 00).
- f. Connect proximity switch control cable assembly. See figure 1.

## WARNING

If aircraft is on gear, make sure parking brake is set and brake pressure is 2900 PSI minimum. Braking system touchdown protection can be activated causing loss of normal brake pressure.

g. If aircraft is on gear, set EMERG BRK/PARK BRK control to PARK BRK and make sure Hydraulic Brake Pressure Indicator reads 2900 PSI minimum.

## WARNING

If launch bar is extended, launch bar must be clear of personnel and equipment, launch bar will retract when NOSE GEAR switch on proximity switch control is set to WT OFF WHL.

h. Make sure personnel and equipment are clear of launch bar.

## WARNING

Only nose landing gear retraction is controlled by weight on wheels (WOW) function. With aircraft on jacks, electrical and hydraulic power applied, and main landing gear downlock safety pins removed, proximity switch control will not prevent main landing gear retraction when LDG GEAR control handle is set UP.

To prevent retraction of nose landing gear, be sure nose landing gear ground safety pin is installed before setting NOSE GEAR switch on proximity switch control to WT OFF WHL.

i. Make sure landing gear aircraft ground safety pins are installed in nose and main landing gear (A1-F18AC-PCM-000). If safety pins must be removed, make sure personnel and equipment are clear of all gear and LDG GEAR control handle position agrees with gear position.

## WARNING

Make sure personnel and equipment are clear of radar liquid cooling ram air scoop. Scoop may open when LEFT GEAR switch on proximity switch control is set to WT OFF WHL.

j. Make sure personnel and equipment are clear of radar liquid cooling ram air scoop.

## WARNING

Do not set GEAR UPLOCK switch on proximity switch control to UP unless specifically directed to do so by applicable maintenance instructions. Damage to aircraft or injury to personnel can result.

k. Do not set GEAR UPLOCK switch on proximity switch control to UP unless specifically directed to do so by applicable maintenance instructions.



To prevent damage to AOA approach light assembly, be sure that AOA approach light assembly light test switch is not set to TEST while RIGHT GEAR switch is set to WT ON WHLS or WT OFF WHLS.

- l. Make sure AOA approach light assembly light test switch is not set to TEST while RIGHT GEAR switch is set to WT ON WHLS or WT OFF WHLS.
- m. External electrical power can now be turned on or applied and switches on proximity switch control can now be set as specified by applicable maintenance instructions. See table 1 for safety considerations relating to proximity switch control switch functions.

#### 2. REMOVAL.

- a. Make sure external hydraulic power is not applied (WP009 00).
- b. Make sure external electrical power is not applied (WP004 00).
- c. Set all switches on proximity switch control (2, figure 1) to NORM.
  - d. Disconnect cable assembly from aircraft.

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- e. Be sure TOT TEMP SENS P HTR and FUEL TK PRESS circuit breakers specified in WP006  $\,$ 00 is closed.
  - f. Close doors 10L/R (A1-F18AC-LMM-010).

#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

Table 1. Proximity Switch Control Safety Considerations

Proximity Switch Control Switch	Proximity Switch Control Switch Position	Result	Related System Control/Switch/ Circuit Breaker Positioning For Safety	Maintenance Safety Consideration	Schematic Reference
All	Any	With aircraft on jacks, electrical and hydraulic power applied and main landing gear downlock safety pins not installed, main landing gear will retract if LDG gear control handle is set to up.	Make sure LDG gear control handle is set to DN.	Proximity switch control will not prevent retraction of the main landing gear.	Landing gear control schematic, A1-F18AC-130-500, WP004 00.
Left Gear	WT OFF Whls	With engine(s) running, and external electrical power applied, fuel tanks pressurize and fuel may vent.	Open fuel TK press circuit breaker specified in (WP006 00).	Shutdown engines immediately if aircraft vents fuel	Fuel pressurization and vent system schematic, A1-F18AC-460-500, WP011 00 or A1-F18AE-460-500, WP011 00.
		With external electrical power applied, radar liquid cooling ram air scoop opens.	None	Make sure personnel are clear or radar liquid cooling ram air scoop.	Radar liquid cooling system schematic, A1-F18AC-410-500, WP014 00.
Right Gear	WT OFF Whls	Loss of Automatic APU fire extinguishing capability.	None	Personnel must be positioned to monitor APU fire warning light to manually trigger APU fire extinguisher when APU is operated.	APU fire extinguishing system schematic, A1-F18AC-240-500, WP010 00.

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Table 1. Proximity Switch Control Safety Considerations (Continued)

Proximity Switch Control Switch	Proximity Switch Control Switch Position	Result	Related System Control/Switch/ Circuit Breaker Positioning For Safety	Maintenance Safety Consideration	Schematic Reference
Right Gear (CONT)	WT OFF Whls (CONT)	Normal Brake pressure is lost for 3 seconds due to brake system touchdown protection.	Set emerg brk/park brk handle to park brk.	If aircraft maintenance is to be done without park brk applied, make sure wheel chocks or aircraft tiedowns are installed.	Wheel brake and anti skid system schematic, A1-F18AC-130-500, WP008 01.
Right Gear	WT ON or WT OFF	AOA Approach Light Assembly may be damaged.	Do not set AOA approach light assembly light test switch to test.	None	Air data computer system angle of attack functional schematic A1-F18AC-560-500, WP005 00.
Left Gear and Right	WT OFF WHLS	Pitot and AOA Probe Heaters Operate.	Make sure probe HTR cont and gnd pwr cont circuit breakers specified in (WP006 00) are closed.	None	Pitot static system heaters schematic, A1-F18AC-510-500, WP003 00.
		Total temperature probe heater operates.	Open tot temp sens p HTR circuit breaker specified in (WP006 00)	None	Air Data Computer System Functional Schematic, A1-F18AC-560-500, WP004 00.

Table 1. Proximity Switch Control Safety Considerations (Continued)

Proximity Switch Control Switch	Proximity Switch Control Switch Position	Result	Related System Control/Switch/ Circuit Breaker Positioning For Safety	Maintenance Safety Consideration	Schematic Reference
Nose Gear	WT OFF WHLS	Launch Bar will retract.	None	If launch bar is extended, launch bar must be clear of personnel and equipment.	Catapult system schematic F/A-18A and F/A-18C A1-F18AC-130-500, WP011 02 and catapult system schematic F/A-18B and F/A-18D A1-F18AC-130-500, WP011 03.
		Nose landing gear may retract.	Make sure LDG gear control handle is set to DN and nose landing gear ground safety pin is installed (A1-F18AC-PCM- 000).	None	Landing gear control schematic, A1-F18AC-130-500, WP004 00.
Gear uplock	Up	Enables stores releases	None	Do not set gear uplock switch to up unless directed to do so by applicable maintenance instruction.	Armament computer input/output interface schematic, A1-F18AC-740-500, WP011 00 or A1-F18AE-740-500, WP012 00.

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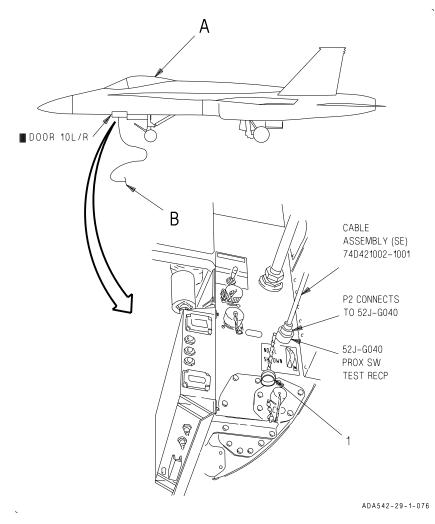


Figure 1. Proximity Switch Control (Sheet 1)

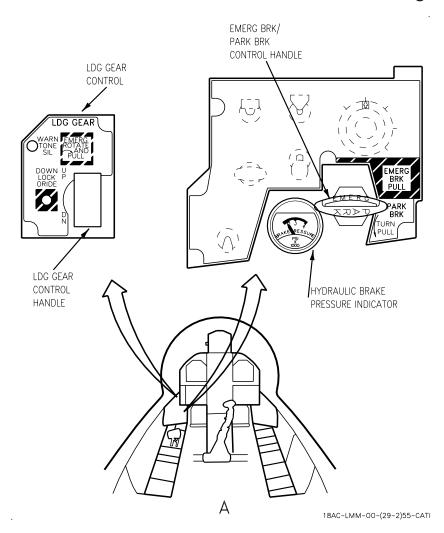


Figure 1. Proximity Switch Control (Sheet 2)

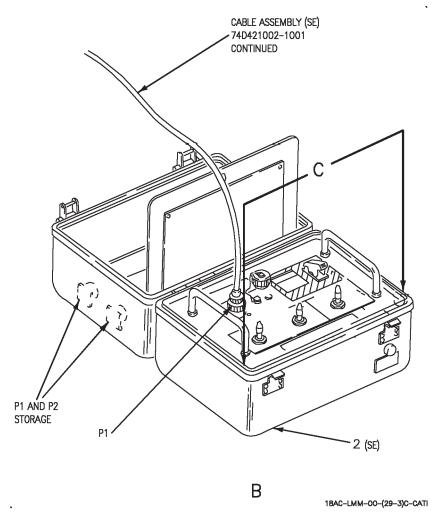
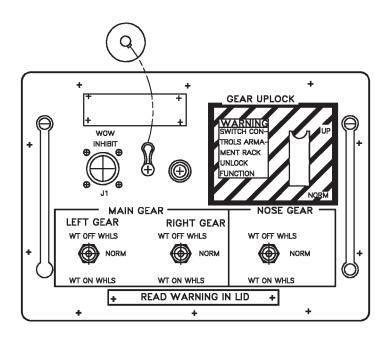


Figure 1. Proximity Switch Control (Sheet 3)



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Figure 1. Proximity Switch Control (Sheet 4)

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1	MS27502B13CL	PROXIMITY SWITCH CONTROL	1		PAOZZ
2	74D420030-1001	. CONTROL, PROXIMITY SWITCH	1		PEOGG

Figure 1. Proximity Switch Control (Sheet 5)

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### SET UP FOR DISPLAYS - COCKPIT DIGITAL DISPLAY INDICATOR

### **Reference Material**

Set Up For Displays - Cockpit	
Digital Display Indicator	
F/A-18A AND F/A-18B	WP008 01
Set Up For Displays - Cockpit	
Digital Display Indicator	
F/A-18C AND F/A-18D	WP008 02

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### SET UP FOR DISPLAYS - COCKPIT DIGITAL DISPLAY INDICATOR

EFFECTIVITY: F/A-18A AND F/A-18B

### Reference Material

None

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# Alphabetical Index (Continued)

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Turn On	3

# **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 49	-	GFE Sealed Lead Acid Battery (SLAB) Addition of (ECP- MDA-F/A-18-00074)	15 Aug 88	-

### **System Required Components**

Left or Right Digital Display Indicator

### **Related System Required**

Avionics Cooling System Electrical System Mission Computer System

## **Support Equipment Required**

None

# **Materials Required**

None

#### NOTE

If a malfunction occurs during this procedure, make sure circuit breakers shown in figure 1 are closed.

For component locator, refer to figure 1.

### 1. TURN ON.

a. Apply electrical power (WP004 00).

- b. On GND PWR control panel assembly, set and hold 1 switch to A ON for three seconds. If right Digital Display Indicator is to be used, also set and hold 2 switch to A ON for three seconds.
- c. On left or right Digital Display Indicator, set power switch to DAY or NIGHT as applicable. Allow 2 minute warmup and adjust BRT and CONT for best display.
- d. Press MENU pushbutton. Indicator has menu display and no CAUT DEGD caution display.

### 2. TURN OFF.

- a. On Digital Display Indicator(s), set power switch to OFF.
- b. Remove electrical power (WP004 00).

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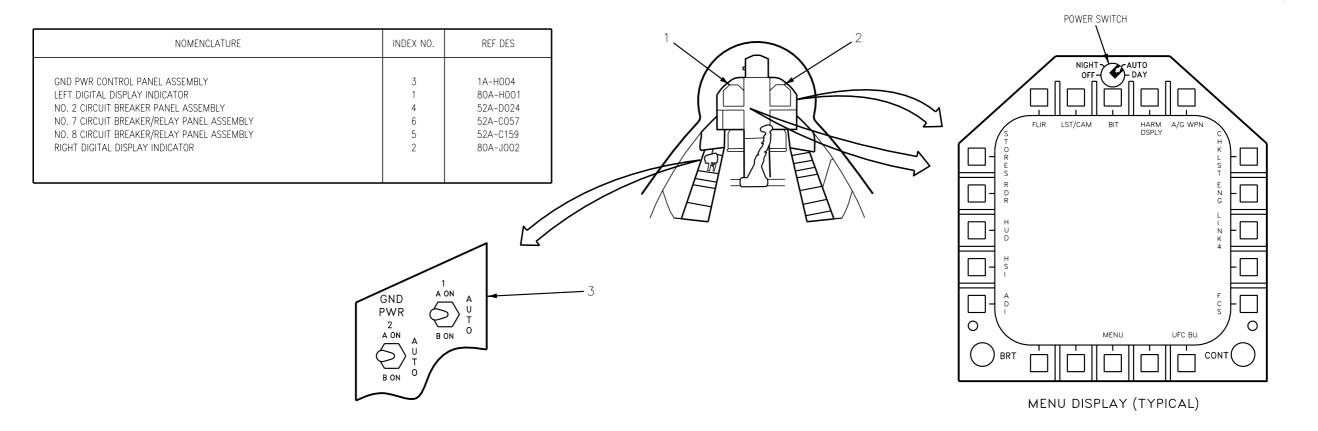
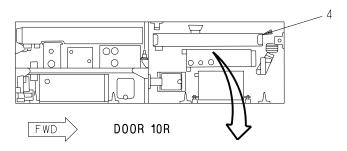


Figure 1. Component Locator (Sheet 1)

Figure 1. Figure 1.

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1 > 4	52A-D	024 N	10. 2 CIRCUIT BREAKER PANEL ASSEMBLY	
	ZONE	REF DES	NOMENCLATURE	BUS
	A11 A12 B11 B12 C11 C12	80CBD007 83CBD009 80CBD008 83CBD010 80CBD009 83CBD011	MFD MISSION CMPTR NO. 2 MFD MISSION CMPTR NO. 2 MFD MISSION CMPTR NO. 2	R115VACØA R115VACØA R115VACØB R115VACØB R115VACØC

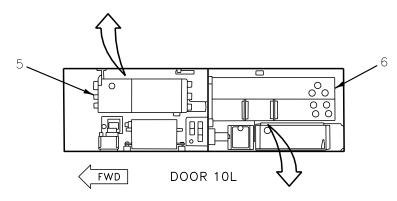
52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY				
ZONE REF	S NOMENCLATURE	BUS		
A17 80CB A18 83CB B17 80CB B18 83CB D7 80CB D8 83CB	MISSION CMPTR NO. 2  MFD  MISSION CMPTR NO. 2  MFD  MISSION CMPTR NO. 2	R115VACØA R115VACØA R115VACØB R115VACØB R115VACØC R115VACØC		

Figure 1. Component Locator (Sheet 2)

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Figure 1.

52A-0	52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	BUS		
D2	85CBC004	MSDRS 3	MAINT 24/28VDC U BATT/MAINT 24/28VDC		
D12 E12 F12	80CBC006 80CBC005 80CBC004	MMD MMD MMD	L115VAСФС L115VAСФВ L115VAСФА		



52A-0	52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
A20 B20 C20	83CBC006 83CBC007 83CBC008	MISSION COMP NO. 1 MISSION COMP NO. 1 MISSION COMP NO. 1	L115VACФА L115VACФВ L115VACФC	

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Figure 1. Component Locator (Sheet 3)

Figure 1. Figure 1.

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### **LEGEND**

1 161353 THRU 161359.

2 161360 AND UP.

3 161353 THRU 161528 BEFORE F/A-18 AFC 49.

4 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 49.

Figure 1. Component Locator (Sheet 4)

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### SET UP FOR DISPLAYS - COCKPIT DIGITAL DISPLAY INDICATOR

EFFECTIVITY: F/A-18C AND F/A-18D

### Reference Material

None

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### **Record of Applicable Technical Directives**

None

# **System Required Components**

Left or Right Digital Display Indicator

### **Related System Required**

Avionics Cooling System Electrical System Mission Computer System

# **Support Equipment Required**

None

### **Materials Required**

None

#### NOTE

If a malfunction occurs during this procedure, make sure circuit breakers shown in figure 1 are closed.

For component locator, refer to figure 1.

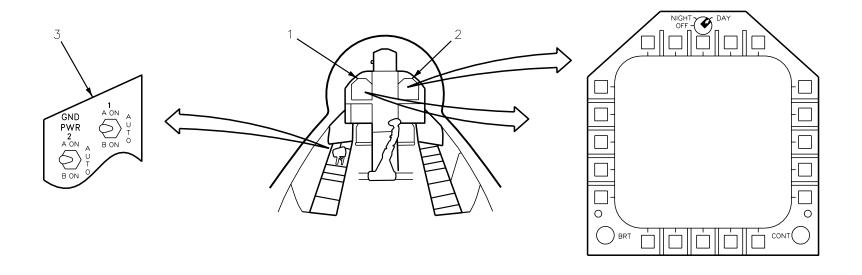
### 1. TURN ON.

- a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON for three seconds. If left Digital Display Indicator remains blank, on GND PWR control panel assembly, set 1 switch to B ON for 3 seconds and return to A ON. If right Digital Display Indicator is to be used, also set and hold 2 switch to A ON for three seconds.
- c. On left or right Digital Display Indicator, set power switch to DAY or NIGHT as applicable. Allow 2 minute warmup and adjust BRT and CONT for best display.

d. Press and release MENU pushbutton switch to alternate between SUPT menu (figure 2, detail A) and TAC menu (detail B) as required.

### 2. TURN OFF.

- a. On Digital Display Indicator(s), set power switch to OFF.
- b. Remove electrical power (WP004 00).

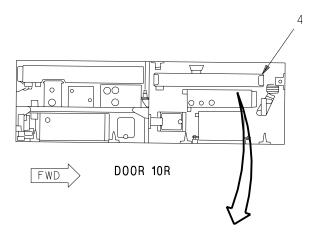


NOMENCLATURE	INDEX NO.	REF DES
GND PWR CONTROL PANEL ASSEMBLY LEFT DIGITAL DISPLAY INDICATOR NO.2 CIRCUIT BREAKER PANEL ASSEMBLY NO.7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY NO.8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY RIGHT DIGITAL DISPLAY INDICATOR	3 1 4 6 5	1A-H004 80A-H001 52A-D024 52A-C057 52A-C159 80A-J002

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Figure 1. Component Locator (Sheet 1)

Figure 1. Figure 1.



52A-D024		NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCL A TURE	BUS	
A17 A18 B17 B18 D7 D8	80CBD007 83CBD009 80CBD008 80CBD010 80CBD009 83CBD011	MFD MISSION CMPTR NO.2 MFD MISSION CMPTR NO.2 MFD MISSION CMPTR NO.2	R115VACØA R115VACØA R115VACØB R115VACØB R115VACØC R115VACØC	

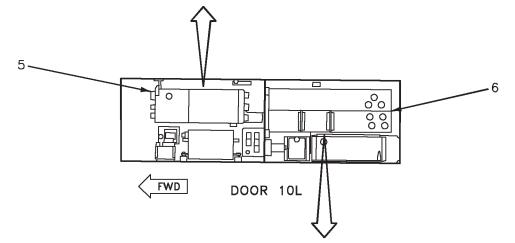
18 A C - L M M - 00 \_ 5 4 - 2 - 5 9

Figure 1. Component Locator (Sheet 2)

Figure 1. Figure 1.

Page	7
------	---

52A-0	52A-C159 NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
D2	85CBC004	SIG DATA COMPUTER	U BATT/MAINT 24/28VDC	
D12	80CBC006	MMD	L115VACØC	
E12	80CBC005	MMD	L115VACØB	
F12	80CBC004	MMD	L115VACØA	

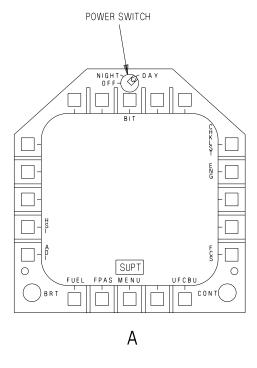


52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A20 B20 C20	83CBC006 83CBC007 83CBC008	MISSION COMP NO.1 MISSION COMP NO.1 MISSION COMP NO.1	L115VACØA L115VACØB L115VACØC

Figure 1. Component Locator (Sheet 3)

18AC-LMM-00-(54-3)36-CATI

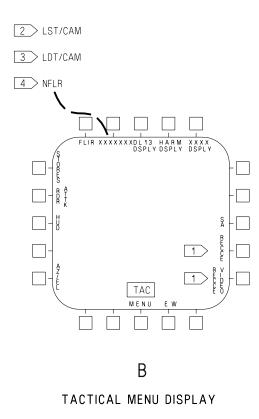




SUPPORT MENU DISPLAY

18 A C - L M M - 00 \_ 118 - 1 - 59

Figure 2. Menu Displays (Sheet 1)



18 A C - L MM - 00 \_ 118 - 2 - 59

Figure 2. Menu Displays (Sheet 2)

008 02

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#### **LEGEND**

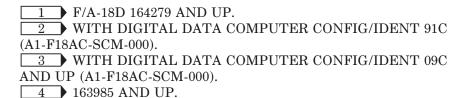


Figure 2. Menu Displays (Sheet 3)

Change 1 - 1 September 1996

#### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### HYDRAULIC POWER APPLICATION AND REMOVAL

### **Reference Material**

Portable Hydraulic Test Stand	NAVAIR 17-15BF-65
Plane Captain Manual	A1-F18AC-PCM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010

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Part Number or

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Support Equipment Required	2

# **Record of Applicable Technical Directives**

None

# Support Equipment Required NOTE

Alternate item type designations or part numbers are listed in parentheses

Type Designation	Nomenclature
AE80620M	Adapter Hose
68A5J800-1	Portable Electric Hydraulic
(AHT-63)	Test Stand
68A4J1000	Portable Diesel Hydraulic
	Test Stand

## **Materials Required**

#### None

- 1. HYDRAULIC POWER APPLICATION AND REMOVAL.
- 2. INTERNAL HYDRAULIC POWER.
- 3. Refer to APU OPERATION-GROUND MAINTENANCE MODE, WP021 00.
- 4. EXTERNAL HYDRAULIC POWER.
- 5. Procedure is written for hydraulic system 2 (right side), and is identical for hydraulic system 1 (left side), except as noted. Apply hydraulic power to hydraulic system 2 (right side), unless otherwise specified.
- 6. APPLICATION.

#### NOTE

The term, Apply external hydraulic power, refer to A1-F18AC-LMM-000, as used in F/A-18 maintenance manuals, means to connect external hydraulic power test stand pressure and return hoses to applicable aircraft hydraulic system and to turn on external hydraulic power test stand, thereby applying hydraulic power to aircraft system.

a. If stabilators are to be operated, make sure doors 68L and 68R are closed and all top (outboard) fasteners are installed (flush); also make sure doors 166L and 166R are closed (A1-F18AC-LMM-010).

- b. Remove tailpipe protective covers, if installed (A1-F18AC-PCM-000).
- c. Make sure doors 64L and 64R are closed and all outboard fasteners are installed (A1-F18AC-LMM-010).
- d. Make sure flap control surface locks are not installed (A1-F18AC-PCM-000).
- e. Make sure stabilator position supports are not installed (A1-F18AC-PCM-000).
- f. Remove door 53L (for hydraulic system 1), or door 53R (for hydraulic system 2) (A1-F18AC-LMM-010).
  - g. Position external hydraulic test stand clear of aircraft.

### NOTE

Bleed test stand per NAVAIR 17-15BF-65.

- h. If not otherwise specified, adjust external hydraulic test stand pressure to 3000 psig, flow to 20 gpm, and return pressure to minimum.
- i. Remove dust caps (1 and 2, figure 1) from applicable hydraulic system pressure and return quick disconnects in doors 53L or 53R, as applicable.

# **WARNING**

Hydraulic fluid is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally enough.

# CAUTION

External hydraulic test stand must be serviced with, and marked for use with MIL-H-83282 hydraulic fluid only. The use of equipment serviced with MIL-H-5606 hydraulic fluid will degrade the fire retardation quality of MIL-H-83282 hydraulic fluid in the aircraft.

To prevent damage/contamination to aircraft hydraulic systems, fluid level in test stand reservoir should be maintained between 3/4 full and full. If more hydraulic fluid is required, add only MIL-H-83282 hydraulic fluid to test stand reservoir.

- j. Connect adapter (3) to return (suction) hose and tighten.
- k. Connect external hydraulic test stand pressure (outlet) and return (suction) hoses to aircraft hydraulic system 1 or system 2 pressure and return disconnects, as applicable. Tighten disconnects in clockwise direction handlight.
- l. If external hydraulic power to hydraulic system 2 and electrical power are to be applied to the aircraft at the same time, set speed brake

009 00

Page 6

switch, LDG GEAR control handle, IFR PROBE control switch and arresting HOOK control to agree with system position.

#### NOTE

Application of external hydraulic power with test stand reservoir selector valve in AIRCRAFT RESERVOIR (closed loop) position, will prevent aircraft reservoir from draining. With the selector valve in TEST STAND RESERVOIR (open loop) position, aircraft reservoir will completely drain and will require servicing.

m. Position external hydraulic test stand reservoir selector valve to AIRCRAFT RESERVOIR position, unless otherwise specified.

### WARNING

To prevent injury to personnel or damage to equipment, make sure personnel and equipment are clear of sweep area of ailerons, trailing edge flaps, stabilators and rudders.

n. Turn on external hydraulic power to aircraft.

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#### 7. REMOVAL

#### NOTE

The term, Remove external hydraulic power, refer to A1-F18AC-LMM-000, as used in F/A-18 maintenance manuals, means to turn off external hydraulic power test stand and to remove external hydraulic test stand pressure and return hoses from the applicable aircraft hydraulic system.

a. Turn off hydraulic power to aircraft.

### WARNING

Hydraulic fluid is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally enough.

- b. Disconnect external hydraulic test stand pressure (outlet) and return (suction) hoses from quick disconnects in door 53L or 53R, as applicable.
- c. If external hydraulic test stand was operated with reservoir selector valve in TEST STAND RESERVOIR (open loop) position, service aircraft reservoir (A1-F18AC-PCM-000).
  - d. Remove adapter (3) from test stand hose.
- e. Install dust caps (1 and 2) on quick disconnects in doors 53L or 53R, as applicable.

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f. Install door 53L or 53R, as applicable (A1-F18AC-LMM-010).

#### 8. TURN ON.

#### NOTE

The term, Turn on external hydraulic power, refer to A1-F18AC-LMM-000, as used in F/A-18 maintenance manuals, means to turn on external hydraulic power test stand (hydraulic test stand pressure and return hoses previously connected to aircraft hydraulic system) thereby applying external hydraulic power to applicable aircraft hydraulic system.

9. Turn on external hydraulic power to applicable aircraft hydraulic system.

#### 10. TURN OFF.

#### **NOTE**

The term, Turn off external hydraulic power, refer to A1-F18AC-LMM-000, as used in F/A-18 maintenance manuals means to turn off external hydraulic power test stand, thereby removing external hydraulic power from applicable aircraft system, but not removing the external hydraulic power test stand pressure and return hoses from aircraft hydraulic system.

11. Turn off external hydraulic power to applicable aircraft hydraulic system, but do not disconnect external hydraulic test stand pressure and return hoses from aircraft.

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### 12. ILLUSTRATED PARTS BREAKDOWN.

13. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

009 00

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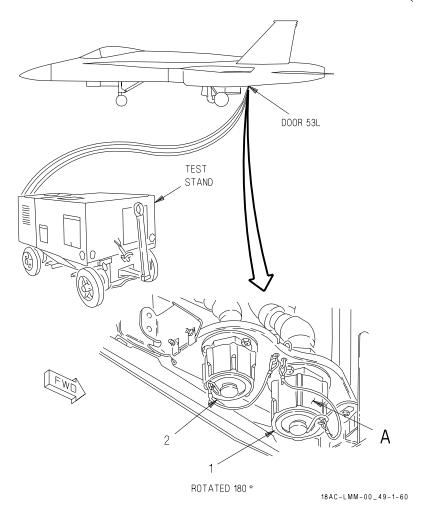
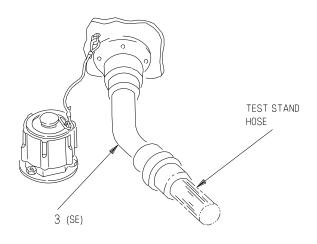


Figure 1. Hydraulic Power Application and Removal (Sheet 1)

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RETURN QUICK DISCONNECT

Α



18 A C - L M M - 00 \_ 49 - 2 - 60

009 00

Change 1 Page 12

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		HYDRAULIC POWER APPLICATION AND			
1	AFOCOCOM 10	REMOVAL	,		D 4 0 7 7
1	AE96863M-12	. CAP, QUICK DISCONNECT (00624) (MCDONNELL SPEC ST7M292D16-12)	1		PAOZZ
2	AE96863K14	. CAP, QUICK DISCONNECT (00624)	1		PAOZZ
3	AE80620M	(MCDONNELL SPEC ST7M292D12-14) . ADAPTER - RETURN HOSE,	1		AGOGG
3	AE80020W	HYDRAULIC TEST STAND (00624)	1		Adodd
		(MCDONNELL SPEC 74-119063-101)			
		(SUPPORT EQUIPMENT)			

010 00

Change 16 - 15 September 2002

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### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

### AIR BLEEDING/DECONTAMINATION - HYDRAULIC SYSTEM

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000
Aviation Hydraulics Manual	NAVAIR 01-1A-17

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### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	-	Throttle Thrust Sensitivity, Reduc- tion of (ECP MDA F/A-18-00054C1)	15 Jul 87	-

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### **Support Equipment Required**

Part Number or Type Designation	Nomenclature
57L414	Contamination Analysis Kit
74D130018-1001	Brake Bleeder Tubing Assembly
74D130017-1001	Brake Bleeder Assembly and Pressure Indicators
74D450101-1001	Hydraulic Components Air Bleed Assembly
74D110105-1001	Speed Brake Aircraft Ground Safety Lock
-	Torque Wrench,
	0 to 50
	Inch-Pounds

### **Materials Required**

None

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### 1. PROCEDURE.

- 2. These procedures provide air bleeding and decontamination for Hydraulic System 1 (HS-1), Hydraulic System 2 (HS-2), and all subsystems. One external hydraulic power source is required to correctly bleed aircraft. If a second hydraulic power source is available, these procedures can be used with pressure applied to both HS-1 and HS-2. If these procedures are used to decontaminate hydraulic system(s), do entire system bleed and observe system filter unit pressure and return differential pressure (Delta-P) indicators. If filter unit(s) Delta-P indicators extend, stop procedure, replace filter element(s), (A1-F18AC-450-300, WP006 00), and repeat applicable procedure from start. If contamination was caused by hydraulic pump failure, decontaminate pump circuit before pump installation (A1-F18AC-450-300, WP003 00), then continue with entire system decontamination.
- 3. Table 1 list paragraphs that shall be done for bleeding hydraulic system(s) after maintenance. To use this table, determine which hydraulic system to bleed then locate component where hydraulic lines have been opened. Do all paragraphs listed in third column for that component. All paragraphs listed in third column shall be done in order listed to accomplish a thorough bleed. This table is constructed to eliminate unnecessary steps and keep aircraft jacking and landing gear cycling to a minimum.

### 4. LEAK CHECK.

5. Leak check is required after replacement of any component(s). Leak check must be done in closed loop to make sure pressure is applied to return lines.

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010 00

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6. If leak check is required, do table 1 for component(s)/system(s) being bled with hydraulic test stand selector valve in AIRCRAFT RESERVOIR (closed loop) position while observing for leaks. After leak check is completed, repeat table 1 for component(s)/system(s) being bled with hydraulic test stand selector valve in TEST STAND RESERVOIR (open loop) position to thoroughly bleed component(s)/system(s).

### 7. TUBING AND CHECK VALVE.

8. When tubing, check valves or other components not listed in table 1 have been removed, observe identification tape or color band on hydraulic line where component was removed, figure 2. Identify corresponding category or component in table 1. Do paragraphs in third column of table 1 in order listed.

### 9. SPECIAL COMPONENT BLEED/DECONTAMINATION.

10. Some components may require special bleed and/or decontamination procedures. Those procedures can be found in applicable component's work package.

#### 11. HYDRAULIC FLUID CONTAMINATION.

12. If major maintenance, metal-generating part failure, or particulate contamination has occurred, do Hydraulic Fluid Contamination Analysis in accordance with NAVAIR 01-1A-17.

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Table 1. Hydraulic System Air Bleeding/ Decontamination

HYDRAULIC System	REPLACED COMPONENT	DO PARAGRAPHS IN ORDER LISTED
HS-1	Right Aileron Servocylinder	13, 23, 24
	Left Rudder Servocylinder	13, 23, 24
	Left Leading Edge Flap Servovalve and Drive Unit	13, 23, 24
	Left Pump/Pump Manifold	13, 15, 24
	Left Filter Unit	13, 15, 24
	Left Case Drain Filter	13, 15, 24
	Left Heat Exchanger	13, 15, 24
	Left Reservoir/ Reservoir Manifold	13, 15, 24
	Left Reservoir Pressure Switch	13, 15, 24

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Table 1. Hydraulic System Air Bleeding/ Decontamination (Continued)

HYDRAULIC SYSTEM	REPLACED COMPONENT	DO PARAGRAPHS IN ORDER LISTED
HS-1 (Continued)	Failed Needle Sink (If needle sink fails a second time, bleed entire aircraft)	13, 23, 24
HS-2	Left Aileron Servocylinder	13, 23, 24
	Right Rudder Servocylinder	13, 23, 24
	Right Leading Edge Flap Servovalve and Drive Unit	13, 23, 24
	Right Pump/Pump Manifold	13, 15, 24
	Right Filter Unit	13, 15, 24
	Right Case Drain Filter	13, 15, 24
	Right Heat Exchanger	13, 15, 24
	Right Reservoir/ Reservoir Manifold	13, 15, 24

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Table 1. Hydraulic System Air Bleeding/ Decontamination (Continued)

HYDRAULIC SYSTEM	REPLACED COMPONENT	DO PARAGRAPHS IN ORDER LISTED
HS-2 (Continued)	Right Reservoir Pressure Switch	13, 15, 24
	Anti Skid Components	13, 22, 24
	Brake Control Servovalve	13, 22, 24
	Arresting Hook Components	13, 21, 24
	Main Landing Gear Components	13, 17, 18, 23, 24
	Nose Landing Gear Components	13, 17, 18, 20, 23, 24
	Nose Wheel Steering	13, 18, 20, 24
	Aft Isolation Valve	13, 18, 24
	Emergency Brake Accumulator	13, 15, 18, 22, 24
	Park and Emergency Brake Arming Valve	13, 22, 24

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Table 1. Hydraulic System Air Bleeding/ Decontamination (Continued)

HYDRAULIC SYSTEM	REPLACED COMPONENT	DO PARAGRAPHS IN ORDER LISTED
HS-2 (Continued)	APU Accumulator	13, 14, 16, 18, 24
	APU Start Motor Circuit	13, 16, 24
	Emergency Inflight Refueling Directional Control Valve	13, 18, 19, 24
	Emergency Nose Wheel Steering	13, 18, 24
	Hydraulic Hand Pump	13, 14, 24
	Start Valve	13, 14, 16, 18, 24
	Aft Priority Valve	13, 21, 24
	Forward Hydraulic Shutoff Solenoid Valve	13, 19, 20, 24
	Forward Priority Valve	13, 19, 20, 24
	Gun Drive System Components	13, 19, 24

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Table 1. Hydraulic System Air Bleeding/ Decontamination (Continued)

HYDRAULIC SYSTEM	REPLACED COMPONENT	DO PARAGRAPHS IN ORDER LISTED
HS-2 (Continued)	Inflight Refueling Probe Servocylinder	13, 19, 24
	Multiple Disc Brake Component	13, 22, 24
	Launch Bar System Components	13, 20, 24
	Speed Brake Components	13, 21, 24
	Failed Needle Sink (If needle sink fails a second time, bleed entire aircraft)	13, 23, 24
HS-1 AND HS-2	Horizontal Stabilator Servocylinder	13, 23, 24
	Trailing Edge Flap Servocylinder	13, 23, 24
	Switching Valves	13, 23, 24

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Table 1. Hydraulic System Air Bleeding/ Decontamination (Continued)

HYDRAULIC	REPLACED	DO PARAGRAPHS
SYSTEM	COMPONENT	IN ORDER LISTED
HS-1 AND HS-2 (Continued)	Bleed Entire Aircraft	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24

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#### 13. PREPARATION.

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Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



External hydraulic test stand must be serviced and marked for use with MIL-PRF-83282 hydraulic fluid only. Use of equipment serviced with MILH5606 hydraulic fluid will degrade fire retardation quality of MIL-PRF-83282 hydraulic fluid in aircraft.

#### NOTE

Aircraft reservoirs are serviced before bleed procedure to make sure sufficient hydraulic fluid exists in reservoirs. Failure to first service reservoir will degrade bleed quality if reservoirs were replaced or drained completely during maintenance action.

- a. Make sure applicable aircraft reservoir is correctly serviced (A1-F18AC-PCM-000).
- b. If landing gear component(s) was replaced or suspected of leaking, jack aircraft (WP038 00).

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Fluid level in test stand reservoir should be 1/2 to 3/4 full before starting bleed procedures. To prevent air from reentering aircraft hydraulic system, do not allow fluid level in test stand reservoir to go below 1/2 full during bleed procedure.

- c. Connect external hydraulic test stand pressure and return lines to applicable system's quick disconnects (WP009 00).
  - d. If bleeding hand pump or pumping circiut, go to step g.

# WARNING

To prevent injury to personnel and damage to equipment, make sure external hydraulic test stand is off before moving test stand reservoir selector valve.

- e. If leak check is not required, make sure hydraulic test stand is off and set test stand selector valve to TEST STAND RESERVOIR position (WP009 00).
- f. Turn on external hydraulic power and slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
  - g. Apply external electrical power (WP004 00).
- h. Do next paragraph called out in Table 1 for component(s)/system(s) being bled.

# A1-F18AC-LMM-000 Change 11

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### 14. HYDRAULIC HAND PUMP.



To prevent dump valve knob return spring damage, do not exceed 35 inch-pounds of torque when operating dump valve knob.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

- a. Deplete APU accumulator hydraulic pressure by rotating accumulator dump valve knob in door 47 clockwise until accumulator is dumped and piston position indicator in right MLG wheelwell indicates 0 percent (figure 1).
  - b. In right MLG wheelwell operate hydraulic hand pump 20 times.
  - c. Observe for leaks.
- d. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

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Change 11

#### 15. PUMPING CIRCUIT.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

- a. Make sure applicable aircraft reservoir is correctly serviced (A1-F18AC-PCM-000).
  - b. Make sure external electrical power is off (WP004 00).
- c. Make sure ground intercommunication equipment is off (WP012 00).
  - d. Make sure external hydraulic power is off (WP009 00).

# WARNING

To prevent injury to personnel and/or damage to aircraft, do not operate flight controls while aircraft is on jacks.

To prevent damage to aircraft, make sure all control surface supports are removed before operating control surfaces.

- e. If aircraft is on jacks, lower aircraft from jacks (WP038 00).
- f. Remove all flight control surface position supports and make sure flap control surface locks are not installed (A1-F18AC-PCM-000).

#### NOTE

Pump flushing/decontamination is required after replacing a defective pump (A1-F18AC-450-300, WP003 00).

If leak check of pumping circuit is required, observe for leaks while AMAD is in ground maintenance mode.

- g. Operate applicable AMAD in ground maintenance mode (WP021 00).
  - h. Observe for leaks.
  - i. On FCS control panel, press and release RESET switch (figure 1).
  - j. Turn on ground intercommunication equipment (WP012 00).

# WARNING

To prevent injury to personnel and/or damage to equipment, area around flight control surfaces must be clear of equipment and personnel before application of external power or cycling of flight controls.

#### NOTE

To allow flight controls full travel, operate flight controls slowly from stop to stop.

k. Slowly operate control stick in a square pattern, stop to stop, five times.

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- l. Turn off ground intercommunication equipment (WP012 00).
- m. Do ground maintenance mode shut down (WP021 00).
- n. Turn on external electrical power (WP004 00).
- o. Set external hydraulic test stand selector valve to TEST STAND RESERVOIR position (WP009 00).
- p. Turn on external hydraulic power and slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
  - q. Turn on ground intercommunication equipment (WP012 00).
- r. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

#### 16. APU START CIRCUIT.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

- a. Turn off ground intercomunication equipment (WP012 00).
- b. Turn off external electrical power (WP004 00).
- c. Bleed APU start circuit by doing substeps below:
- (1) Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).

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(2) Open door 52 (A1-F18AC-LMM-010).



To prevent injury to personnel and/or damage to aircraft, disconnect plug P8 from connector 2J-P015 to prevent APU from starting during bleeding procedure.

(3) Disconnect APU plug P8 from connector 2J-P015 (figure 1).



To prevent damage to electrical connector, use jumper wire with correct size pins.

- (4) Install jumper wire on connector 2J-P015, pins R and S.
- (5) Turn on external electrical power (WP004 00).
- (6) Turn on ground intercommunication equipment (WP012 00).
- (7) On APU control panel, hold APU control switch to ON and motor APU until APU accumulator is completely discharged of hydraulic pressure (figure 1).
- (8) On APU control panel, release APU control switch (figure 1).
- (9) Apply 3000 psi external hydraulic pressure to hydraulic system 2 until APU accumulator is full. Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).

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- (10) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
  - (11) Repeat substeps (7) through (10) five times.
  - d. Turn off ground intercommunication equipment (WP012 00).
  - e. Turn off external electrical power (WP004 00).
  - f. Remove jumper wire from 2J-P015 pins R and S (figure 1).
  - g. Reconnect APU plug P8 to connector 2J-P015.
  - h. Close door 52 (A1-F18AC-LMM-010).
  - i. Turn on ground intercommunication equipment (WP012 00).
  - j. Turn on external electrical power (WP004 00).
- k. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

#### 17. LANDING GEAR.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

a. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).

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# CAUTION

To prevent damage to aircraft, make sure tires are not over or under inflated, main landing gear (MLG) shock absorbers and nose landing gear (NLG) cylinder and piston assembly are correctly serviced. Incorrectly serviced conditions may cause interference during landing gear retraction.

- b. Make sure tires, MLG shock absorbers, and NLG cylinder and piston assembly are correctly serviced.
  - c. If not already jacked, jack aircraft (WP038 00).
- d. Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
- e. Remove ground safety pins from landing gear, landing gear doors, and arresting hook (A1-F18AC-PCM-000).

### WARNING

To prevent damage to aircraft, do not set GND PWR control panel 4 switch to B ON or ELEC power control panel BATT switch to ON. Uncommanded flight control surface movements may result.

- f. On GND PWR control panel, set 2 switch to B ON and hold for three seconds (WP004 00).
  - g. Bleed normal landing gear system by doing substeps below:

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### WARNING

To prevent injury to personnel and/or damage to equipment, areas around landing gear wheelwells and arresting gear must be clear of equipment and personnel before application of external power or cycling of gear.

- (1) Set LDG GEAR control handle to UP and slowly close hydraulic test stand pressure bypass valve until landing gear begins to retract at a slow rate. Allow landing gear to completely retract (figure 1).
- (2) Set LDG GEAR control handle to DN. Allow landing gear to fully extend.
  - (3) Repeat substeps (1) thru (2) three times.
- h. Set LDG GEAR control handle to UP. Allow landing gear to completely retract (figure 1).
  - i. Bleed emergency landing gear system by doing substeps below:
- (1) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.

Change 12

010 00 Page 22

### WARNING

To prevent injury to personnel and/or damage to equipment, areas around landing gear wheelwells and arresting gear must be clear of equipment and personnel before application of external power or cycling of gear.

(2) Rotate LDG GEAR control handle  $90^\circ$  clockwise and pull LDG GEAR control handle out to locked position. Allow landing gear to fully extend (figure 1).



To prevent damage to MLG side brace overcenter linkage and MLG hydraulic tubing, LDG GEAR control handle must be in DN (outboard) position before resetting handle from emergency to normal.

- (3) Set LDG GEAR control handle outboard. Push handle in and rotate  $90^{\circ}$  counterclockwise.
- (4) Install ground safety pins in right MLG and right MLG door (A1-F18AC-PCM-000).
- (5) Apply 3000 psi external hydraulic pressure to hydraulic system 2 and hold HYD ISOL switch to ORIDE until APU accumulator is full. Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
  - (6) Release HYD ISOL switch.

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Change 12

Page 22A/(22B blank)

- (7) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
- (8) Remove ground safety pins from right MLG and right MLG door (A1-F18AC-PCM-000).

### WARNING

To prevent injury to personnel and/or damage to equipment, areas around landing gear wheelwells and arresting gear must be clear of equipment and personnel before application of external power or cycling of gear.

(9) Set LDG GEAR control handle to UP and slowly close hydraulic test stand pressure bypass valve until landing gear begins to retract at a slow rate. Allow landing gear to completely retract (figure 1).

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- (10) Repeat substeps (1) thru (9) three times.
- j. Bleed normal landing gear system by doing substeps below:

### WARNING

To prevent injury to personnel and/or damage to equipment, areas around landing gear wheelwells and arresting gear must be clear of equipment and personnel before application of external power or cycling of gear.

- (1) Set LDG GEAR control handle to DN. Allow landing gear to completely extend (figure 1).
- $\,$  (2) Set LDG GEAR control handle to UP. Allow landing gear to fully retract.
  - (3) Repeat substeps (1) thru (2) three times.
- k. Set LDG GEAR control handle to DN. Allow landing gear to fully extend.
  - l. Bleed arresting gear system by doing substeps below:



To prevent damage to aircraft, door 103 must be installed before arresting gear is extended or retracted.

(1) If removed, install door 103 (A1-F18AC-LMM-010).

# WARNING

- (2) Set arresting HOOK control handle to down position. Allow arresting hook to fully extend (figure 1).
- (3) Set arresting HOOK control handle to up position. Allow arresting hook to completely retract.
  - (4) Repeat substeps (2) thru (3) five times.
- m. Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
  - n. On GND PWR control panel, set 2 switch to AUTO (figure 1).
- o. Install ground safety pins in landing gear, landing gear doors, and arresting hook (A1-F18AC-PCM-000).
- p. If doing paragraphs 18 and/or 20, install skid plates or plastic sheets under nose wheels.
  - q. Lower aircraft from jacks (WP038 00).
- r. Wait 20 minutes to allow air in hydraulic test stand reservoir to escape.

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s. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

### 18. EMERGENCY SYSTEM.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

Skid plates or plastic sheets may be installed or removed from under nose wheels by jacking and lowering NLG, using spotting dolly, or towing aircraft.

- a. Install skid plates or heavy duty plastic sheets under nose wheels.
- b. Remove nose wheel steering power unit safety pin (A1-F18AC-PCM-000).
- c. Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
- d. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).

#### NOTE

If leak check of emergency system is required observe for leaks while doing emergency system bleed procedures.

e. Bleed emergency inflight refueling probe by doing substeps below:

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### WARNING

To prevent injury to personnel and/or damage to equipment, area around inflight refueling probe and nose wheelwell must be clear of equipment and personnel before application of external power or cycling of probe and nose wheel.

- (1) On 161353 THRU 161528 BEFORE F/A18 AFC 41, on FUEL control panel, set PROBE control switch to EMERGENCY EXTEND. Allow refueling probe to extend (figure 1).
- (2) On 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 41, on FUEL control panel, set PROBE control switch to EMERG EXTD. Allow refueling probe to extend (figure 1).
  - (3) Observe for leaks.
- (4) Slowly close external hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (5) On FUEL control panel, set PROBE control switch to RETRACT. Allow refueling probe to completely retract (figure 1).
- (6) Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
- (7) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
  - (8) Repeat substeps (1) thru (7) five times.

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f. Bleed emergency nose wheel steering by doing substeps below:

### NOTE

Be sure maintenance stands are backed away from aircraft, nose wheels are on skid plates or heavy duty plastic sheets, and nose wheels are not tightly chocked.

- (1) Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
  - (2) Turn on left DDI (WP008 00).
  - (3) Turn on HUD (WP008 00).
- (4) On FCS control panel, press and release RESET switch (figure 1).
- (5) On aircraft control stick, press and hold UNDESIGNATE/NOSE WHEEL STEER switch.
  - (6) HUD displays NWS HI advisory.
  - (7) LDDI does not display NWS caution.
  - (8) Apply full right rudder pedal.
- (9) After nose wheels rotate full right, apply left rudder pedal until nose wheels return to neutral.
- (10) On aircraft control stick, release UNDESIGNATE/NOSE WHEEL STEER switch.
  - (11) Observe for leaks.

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- (12) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (13) Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
- (14) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
- $\,$  (15) On FCS control panel, press and release RESET switch (figure 1).
- (16) On aircraft control stick, press and hold UNDESIGNATE/NOSE WHEEL STEER switch.
  - (17) HUD displays NWS HI advisory.
  - (18) LDDI does not display NWS caution.
  - (19) Apply full left rudder pedal.
- (20) After nose wheels rotate full left, apply right rudder pedal until nose wheels return to neutral.
- (21) On aircraft control stick, release UNDESIGNATE/NOSE WHEEL STEER switch.
  - (22) Observe for leaks.
- (23) Slowly close external hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).

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Change 11

- (24) Make sure APU accumulator pressure gage in right MLG wheelwell indicates 3000 psi (figure 1).
- (25) Slowly open external hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
  - (26) Repeat substeps (4) thru (25) five times.
  - (27) Turn off HUD (WP008 00).
  - (28) Turn off LDDI (WP008 00).
- g. Install nose wheel steering power unit safety pin (A1-F18AC-PCM-000).
- h. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

### 19. FORWARD ACCESSORIES.

### **NOTE**

Do not proceed with this paragraph unless directed to do so by table 1.

a. Bleed normal inflight refueling probe by doing substeps below:

## WARNING

To prevent injury to personnel and/or damage to equipment, area around inflight refueling probe must be clear of equipment and personnel before application of external power or cycling of probe.

- (1) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (2) On FUEL control panel, set PROBE control switch to EXTEND (normal extend) position. Allow refueling probe to fully extend (figure 1).
- (3) On FUEL control panel, set PROBE control switch to RETRACT. Allow refueling probe to completely retract.
  - (4) Repeat substeps (2) thru (3) five times.
  - b. Bleed gun drive system by doing substeps below:
    - (1) Open door 6 (A1-F18AC-LMM-010).
    - (2) Make sure gun is safe (A1-F18AC-PCM-000).
- (3) In door 6, pull and hold hydraulic manual control handle for at least one minute.
  - (4) Close door 6 (A1-F18AC-LMM-010).
- c. Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.

d. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

### 20. NOSE LANDING GEAR ACCESSORIES.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

Skid plates or plastic sheets may be installed or removed from under nose wheels by jacking and lowering NLG, using spotting dolly, or towing aircraft.

- a. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
  - b. Install skid plates or heavy duty plastic sheets under nose wheels.
- c. Remove nose wheel steering power unit safety pin (A1-F18AC-PCM-000).
  - d. Bleed normal launch bar system by doing substeps below:

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## WARNING

To prevent injury to personnel and/or damage to equipment, area around nose wheel must be clear of equipment and personnel before application of external power or cycling of launch bar.

- (1) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (2) On LH vertical console control panel, set LAUNCH BAR switch to EXTEND. Allow launch bar to fully extend (figure 1).
- (3) On LH vertical console control panel, set LAUNCH BAR switch to RETRACT. Allow launch bar to completely retract.
  - (4) Repeat substeps (2) thru (3) five times.
  - e. Bleed normal nose wheel steering by doing substeps below:

#### NOTE

Make sure maintenance stands are backed away from aircraft and nose wheels are on skid plates or heavy duty plastic sheets, and nose wheels are not tightly chocked.

- (1) Turn on left DDI (WP008 00).
- (2) Turn on HUD (WP008 00).

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- $\ \,$  (3) On FCS control panel, press and release RESET switch (figure 1).
- (4) On aircraft control stick, press and hold UNDESIGNATE/NOSE WHEEL STEER switch (figure 1).
  - (5) HUD displays NWS HI advisory.
  - (6) LDDI does not display NWS caution.
  - (7) Apply full right rudder pedal.
- (8) After nose wheels rotate full right, apply full left rudder pedal.
  - (9) Repeat substeps (7) thru (8) ten times.
- (10) After nose wheels rotate full left, apply right rudder pedal until nose wheels return to neutral position.
- (11) On aircraft control stick, release UNDESIGNATE/NOSE WHEEL STEER switch (figure 1).
  - (12) Turn off HUD (WP008 00).
  - (13) Turn off LDDI (WP008 00).
- f. Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
- g. Install nose wheel steering power unit safety pin (A1-F18AC-PCM-000).
- h. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

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21. AFT ACCESSORIES.

Change 11

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

a. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).



To prevent damage to aircraft, door 103 must be installed before cycling of arresting gear or speed brake.

- b. If removed, install door 103 (A1-F18AC-LMM-010).
- c. Remove ground safety pin from arresting hook (A1-F18AC-PCM-000).
- d. If installed, remove ground safety lock from speed brake (A1-F18AC-PCM-000).
- e. If not previously bled, bleed arresting gear system by doing substeps below:

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## WARNING

To prevent injury to personnel and/or damage to equipment, areas around landing gear wheelwells and arresting gear must be clear of equipment and personnel before application of external power or cycling of gear.

- (1) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (2) Set arresting HOOK control handle to down position. Allow arresting hook to fully extend (figure 1).
- (3) Set arresting HOOK control handle in up position. Allow arresting hook to completely retract.
  - (4) Repeat substeps (2) thru (3) five times.
  - f. Bleed speed brake system by doing substeps below:

## WARNING

- (1) On throttle quadrant, set speed brake switch to aft (extend) position. Allow speed brake to fully extend (figure 1).
- (2) On throttle quadrant, set speed brake switch to forward (retract) position. Allow speed brake to completely retract.
  - (3) Repeat substeps (1) thru (2) ten times.

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- g. Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
  - h. Install ground safety pin in arresting hook (A1-F18AC-PCM-000).
- i. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

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22. BRAKES.

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To prevent damage to multiple disc brake bleed valve, bleed valve must not be tightened more than 25 inch-pounds or open more than 1/2 turns. Bleed valve must not be turned when removing and installing cap on bleeder assembly.

To prevent hydraulic fluid contamination of multiple disc brake, caution must be used during brake bleeding to avoid getting hydraulic fluid on disc brake. Make sure any excess hydraulic fluid is wiped off bleed valve after brake bleeding.

To prevent damage to brake bleeder assembly and pressure indicators, do not operate lower bleed valve while system is pressurized.

### **NOTE**

These procedures are typical for left and right emergency brakes.

- a. Prepare aircraft to bleed MLG brakes by doing substeps below:
  - (1) Make sure aircraft is correctly chocked.
- (2) Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).

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# WARNING

To prevent damage to aircraft and/or injury to personnel remove aircraft park brake to prevent pressurizing brake system.

- (3) Remove aircraft from park brake by rotating EMERG BRK/PARK BRK control handle  $90\,^\circ$  clockwise and push control handle in (figure 1).
- (4) Hold bleeder hex with a wrench and remove dust cap from MLG brake bleed valve (figure 1).

## WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.

- (5) Hold bleeder hex with wrench and connect brake bleeder assembly and pressure indicator to brake bleed valve.
- (6) Route bleed tube end of brake bleeder assembly into a graduated fluid container.

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#### NOTE

Opening MLG brake bleeder hex more than 1/2 turn will allow full brake pressure through bleeder assembly, resulting in hydraulic fluid spills.

- (7) Open bleeder hex on MLG brake bleed valve 1/2 turn.
- (8) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
  - (9) Press and hold brake pedals.
- (10) On brake bleeder assembly and pressure indicator, rotate and hold bleeder valve 90° clockwise. Deplete at least 1 cup of hydraulic fluid or until fluid is free of air.
  - (11) Release bleeder valve and brake pedals.
- $(12)\,$  On LH vertical console control panel, pull EMERG BRK/PARK BRK control handle to emergency brake position.
  - (13) Press and hold brake pedals.
- (14) On brake bleeder assembly and pressure indicator, rotate and hold bleeder valve 90° clockwise. Deplete at least 1 cup of hydraulic fluid or until fluid is free of air.
  - (15) Release bleeder valve and brake pedals.
- (16) On LH vertical console control panel, push EMERG BRK/PARK BRK control handle in, rotate 90° counterclockwise, and pull EMERG BRK/PARK BRK control handle to park brake position.

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- (17) On brake bleeder assembly, rotate and hold bleeder valve 90° clockwise. Deplete at least 1 cup of hydraulic fluid or until fluid is free of air.
  - (18) Release bleeder valve.
- b. Confirm brake system is correctly pressurized by doing substeps below:
- (1) Rotate EMERG BRK/PARK BRK control handle  $45^{\rm o}$  counterclockwise and push handle in.
- (2) Firmly press and hold brake pedals and observe brake bleeder assembly and pressure indicator indicates 2850 to 3050 psi.
- (3) Release brake pedals and observe brake bleeder assembly and pressure indicator indicates less than 125 psi.
- (4) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
- $\,$  (5) On MLG brake bleed valve, torque bleeder hex to 25 inch-pounds maximum. (QA)
- (6) Hold bleeder hex with a wrench and disconnect bleeder assembly from MLG brake bleed valve. Wipe excess hydraulic fluid from MLG brake bleed valve and surrounding areas.
- (7) Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi (WP009 00).
- (8) Press and hold brake pedals. Inspect MLG brake bleed valve for hydraulic fluid leakage. If leakage is detected, repair leak, return aircraft to initial condition, and do this paragraph again.

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- (9) Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
- (10) Hold bleeder hex with a wrench and install dust cap on MLG brake bleed valve.
- c. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

### 23. FLIGHT CONTROLS.

#### NOTE

Do not proceed with this paragraph unless directed to do so by table 1.

a. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).

# WARNING

To prevent injury to personnel and/or damage to aircraft, do not operate flight controls while aircraft is on jacks. Make sure all control surface supports are also removed before operating control surfaces.

- b. If aircraft is on jacks, lower aircraft from jacks (WP038 00).
- c. Remove all flight control surface position supports and make sure flap control surface locks are not installed (A1-F18AC-PCM-000).

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# WARNING

To prevent injury to personnel and/or damage to equipment, area around flight controls must be clear of equipment and personnel before application of external power or cycling flight controls.

- d. Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi.
- e. On LH vertical console GND PWR control panel, set and hold 4 switch to B ON for three seconds (figure 1).
  - f. On FCS control panel, press and release RESET switch (figure 1).

#### NOTE

To allow flight controls full travel, operate flight controls slowly from stop to stop.

- g. Bleed ailerons and horizontal stabilator by slowly operating flight control stick in a square pattern, stop to stop, ten times.
  - h. Bleed rudder by doing substeps below:
    - (1) Slowly operate right rudder pedal full forward.
    - (2) Slowly operate left rudder pedal full forward.
    - (3) Repeat substeps (1) thru (2) ten times.
- i. Bleed leading edge and trailing edge flaps by doing substeps below:

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- (1) On LH vertical console control panel, set FLAP switch to FULL. Allow flaps to fully extend (figure 1).
- (2) On LH vertical console control panel, set FLAP switch to AUTO. Allow flaps to completely retract.
  - (3) Repeat substeps (1) thru (2) ten times.
- j. Slowly open hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 0 psi.
- k. On LH vertical console, GND PWR control panel, set 4 switch to AUTO (figure 1).
- l. Do next paragraph called out in table 1 for component(s)/system(s) being bled.

## 24. COMPLETION.

### NOTE

Do not continue with this paragraph unless directed to do so by table 1.

This paragraph is not required during leakcheck but is required if doing bleed procedures.

Flight controls are cycled during completion paragraph to make sure any residual air throughout hydraulic system is removed.

a. Wait 20 minutes to allow air in hydraulic test stand reservoir to escape.

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- indicates 0 psi
- b. Make sure hydraulic test stand high pressure gage indicates 0 psi (WP009 00).
  - c. If aircraft is on jacks, lower aircraft from jacks (WP038 00).
- d. Make sure all flight control surface position supports and flap control surface locks are not installed (A1-F18AC-PCM-000).
- e. Slowly close hydraulic test stand pressure bypass valve until hydraulic test stand high pressure gage indicates 3000 psi.
- f. On LH vertical console GND PWR control panel, set and hold 4 switch to B ON for three seconds (figure 1).
  - g. On FCS control panel, press and release RESET switch (figure 1).

## WARNING

To prevent injury to personnel and/or damage to equipment, area around flight control surfaces must be clear of equipment and personnel before application of external power or cycling of flight controls.

### **NOTE**

To allow flight controls full travel, operate flight controls slowly from stop to stop.

- h. Bleed ailerons and horizontal stabilators by slowly operating flight control stick in a square pattern, stop to stop, ten times.
  - i. Bleed rudder control by doing substeps below:

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#### NOTE

To allow rudder full travel, operate rudder pedals slowly.

- (1) Operate left rudder pedal full forward.
- (2) Operate right rudder pedal full forward.
- (3) Repeat substeps (1) thru (2) ten times.
- (4) Return rudder pedals to neutral position.
- j. Bleed leading edge and trailing edge flaps by doing substeps below:
- (1) On LH vertical console control panel, set FLAP switch to FULL. Allow flaps to fully extend (figure 1).
- $\,$  (2) On LH vertical console control panel, set FLAP switch to AUTO. Allow flaps to completely retract.
  - (3) Repeat substeps (1) thru (2) ten times.
  - k. Service applicable hydraulic reservoir (A1-F18AC-PCM-000).
- l. On LH vertical console, GND PWR control panel, set 4 switch to AUTO (figure 1).
- m. Take hydraulic fluid sample from fluid sampling valve on HS-1 and HS-2 filter unit in left and right MLG wheelwell, as applicable. Do fluid contamination analysis in accordance with NA-01-1A-17.

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- n. Remove external hydraulic power (WP009 00).
- o. If replaced component was not a flight control component, go to step q.
- p. If replaced component was a flight control component, do substeps below:
- (1) Make sure external hydraulic test stand reservoir selector valve is in TEST STAND RESERVOIR position (WP009 00).
- $\left(2\right)$  Apply external hydraulic power to opposite hydraulic system (WP009 00).
  - (3) Repeat steps f thru n, then go to step q.
  - q. Remove ground intercommunication equipment (WP012 00).
  - r. Remove external electrical power (WP004 00).
  - s. Install door(s) 53L/R as applicable (A1-F18AC-LMM-010).
  - t. Install ground safety devices (A1-F18AC-PCM-000).

## **NOTE**

It is recommended to wait at least 8 hours before doing reservoir gage needle sink test to allow air in hydraulic fluid to come out of suspension.

- u. Do reservoir needle sink test by doing substeps below:
- (1) Record position of applicable hydraulic system fluid level indicator needle.

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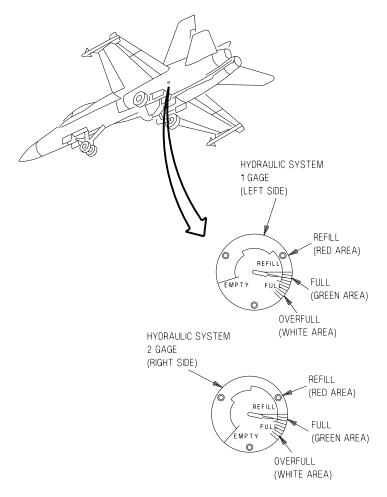
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(2) Operate AMAD in ground maintenance mode for 2 minutes, using APU (WP021 00).

- (3) Record position of applicable hydraulic system fluid level indicator needle.
  - (4) Shut down AMAD and APU (WP021 00).
- (5) If position of applicable hydraulic system fluid level indicator needle, recorded in substep (1), varied from position of needle, recorded in substep (3), by more than one increment for HS-1 or more than three increments for HS-2, do failed needle sink, table 1, for applicable hydraulic system.

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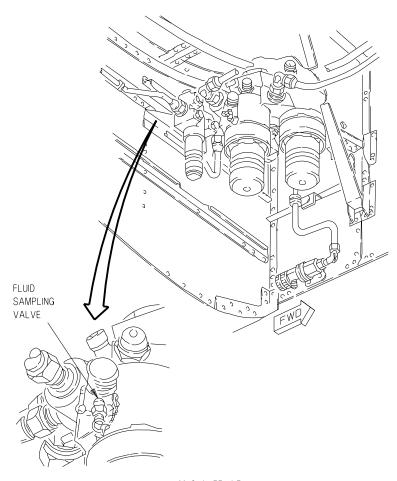


ADA542-51-1-065

Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 1)

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MLG WHEELWELL

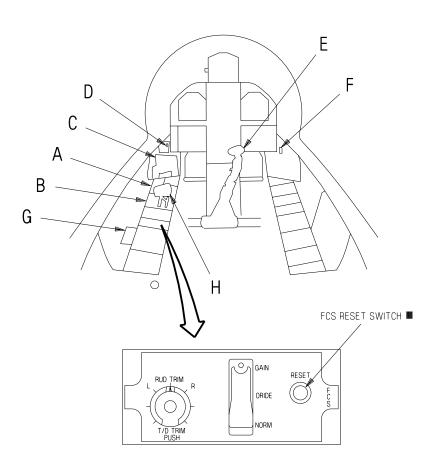
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Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 2)

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ADA542-51-4-071

Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 3)

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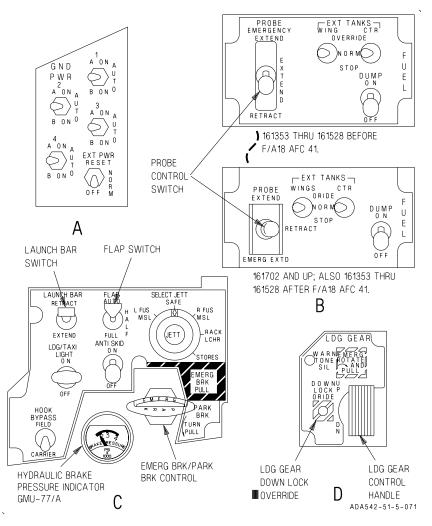


Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 4)

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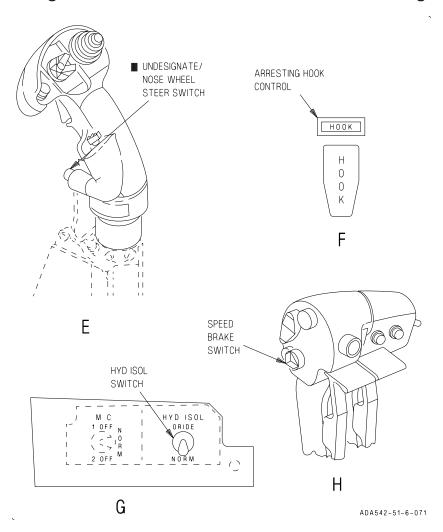
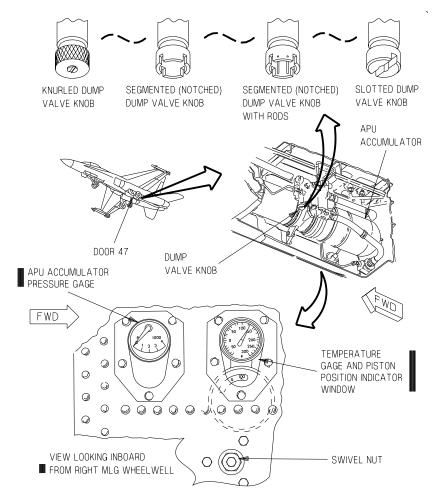


Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 5)

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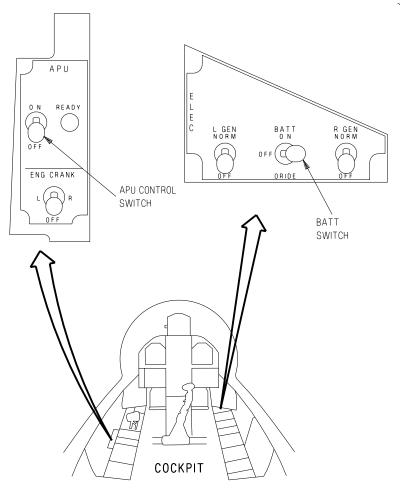


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Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 6)

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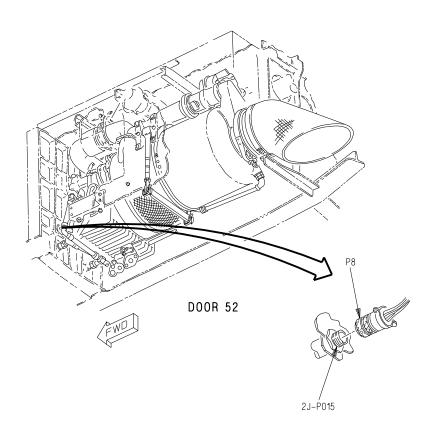
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Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 7)

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Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 8)

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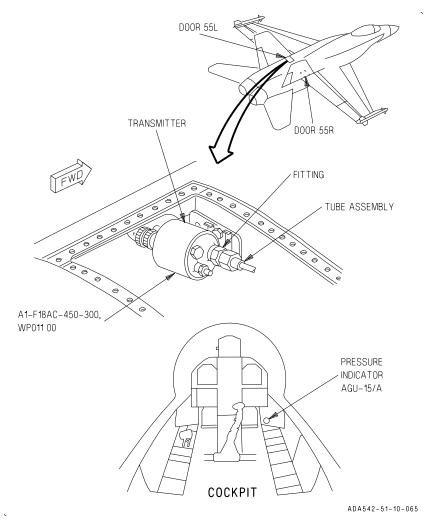


Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 9)

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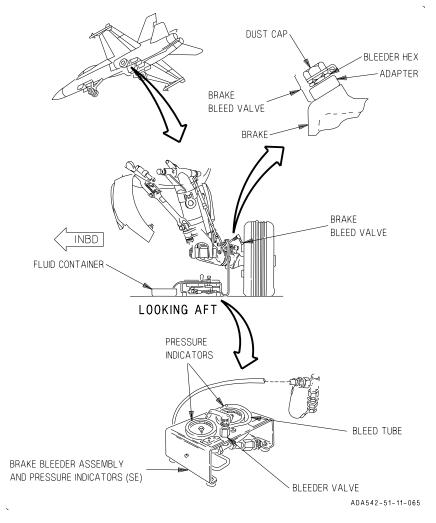
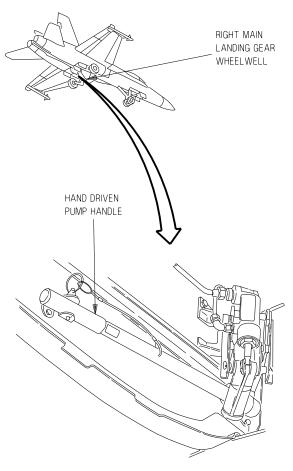


Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 10)

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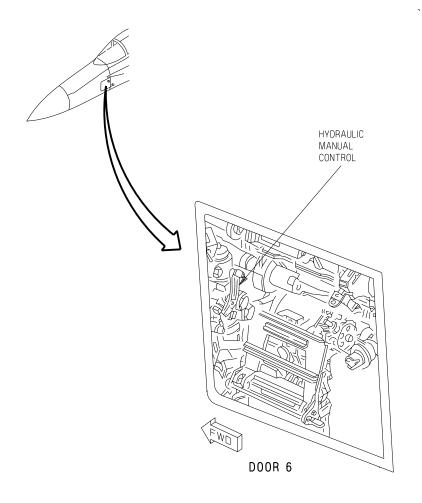


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Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 11)

010 00

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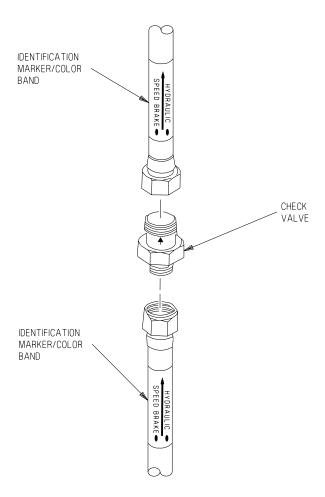
ADA542-51-13-065

Figure 1. Hydraulic System Air Bleeding/Decontamination (Sheet 12)

010 00

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ADA542-149-1-065

Figure 2. Identification Marker/Color Band Location

15 April 1996

011 00 Page 1

### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **EXTERNAL GROUND COOLING AIR APPLICATION AND REMOVAL**

## **Reference Material**

A1-F18AC-LMM-010
NAVAIR 19-60-87
(ASHORE)
NAVAIR AG-180AO-
MMM-000
(AFLOAT)

## 011 00

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## **Alphabetical Index**

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External Cooling Air Application, Figure 1	6
Materials Required	3
Removal	4
Support Equipment Required	3

## **Record of Applicable Technical Directives**

None

# Support Equipment Required NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation	Nomenclature
98000	Mobile Aircraft Ground Cooling Air Conditioner (ASHORE)
1603AS100-1	Mobile Electric Air Conditioner NR-5C (AFLOAT)

### **Materials Required**

None

### 1. APPLICATION.

a. Open door 128, (figure 1) (A1-F18AC-LMM-010).

#### **NOTE**

No more than two aircraft may be serviced from one air conditioner. If avionics undercool condition occurs, electrical power will automatically shut down.

- b. Connect air conditioner air supply hose to aircraft system ground cooling port.
- c. Start air conditioner and operate in cooling mode per unit operating instructions (NAVAIR 19-60-87) or (NAVAIR AG-180AO-MMM-000).
- d. Adjust air conditioner to supply a minimum flow rate of 50 lbs/min at 3 psig and 50°F.

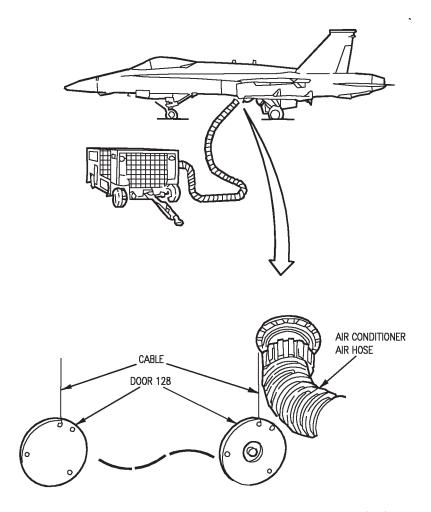
### 2. REMOVAL.

### WARNING

To prevent death or injury to personnel or damage to equipment, reduce air conditioner air output to zero to prevent air conditioner supply hose from whipping around when disconnected.

a. Reduce air conditioner output to zero (NAVAIR 19-60-87) or (NAVAIR AG-180AO-MMM-000).

- b. Shut down air conditioner per unit operating instructions (NAVAIR 19-60-87) or (NAVAIR AG-180AO-MMM-000).
- c. Disconnect air conditioner supply hose from aircraft system ground cooling port (figure 1).
  - d. Close door 128 (A1-F18AC-LMM-010).



18AC-LMM-00-(56-1)C-CATI

Figure 1. External Cooling Air Application

15 April 1996

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### **HOOKUP - GROUND INTERCOMMUNICATION**

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Line Maintenance Procedures	A1-F18AC-LMM-000
Electrical Power Application And Removal	
Procedures	WP004 00

# **Alphabetical Index**

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Figure 1	8

# 012 00

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# Alphabetical Index (Continued)

Subject	Page No.
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Support Equipment Required	2

### **Record of Applicable Technical Directives**

None

### **Support Equipment Required**

Part Number or Type Designation	Nomenclature
-	Headset/Microphone
-	Assembly for cockpit/
	rear cockpit use:
-	Headset
-	Electrical Cord
-	Microphone
-	Amplifier
-	Oxy/Comm Hose
-	Headset/Microphone

# **Support Equipment Required (Continued)**

Part Number or Type Designation	Nomenclature
-	Assembly for ground use:
-	Headset
-	Electrical Cord
-	Microphone
-	Electrical Cord Assembly
-	Flight Deck Helmet

# **Materials Required**

None

#### 1. CONNECTING.

2. Intercommunication can be established between the ground and cockpit, cockpit and rear cockpit, or rear cockpit and ground. Connect equipment as required.

#### 3. GROUND.

- a. Open door 8 (A1-F18AC-LMM-010).
- b. On COMM CONT panel (5, figure 1), remove cover (1) from INTERCOM receptacle (4) (76J-B023B).
- c. Connect electrical cord assembly (2) to INTERCOM receptacle (4) (76J-B023B) on COMM CONT panel (5).
- d. Connect headset/microphone assembly (3) to receptacle on electrical cord assembly (2).

#### 4. COCKPIT.

- a. On aircraft seat oxygen survival kit (14, figure 1) (survival kit), connect oxy/comm hose (12) to aircrew disconnect (13).
- b. On left console, make sure comm lead (15) is connected to COMM receptacle (9) (76J-H016).
  - c. Connect headset/microphone assembly (3) to oxy/comm hose (12).

#### 5. **REAR COCKPIT.**

- a. On aircraft seat oxygen survival kit (14, figure 1), connect oxy/comm hose (12) to aircrew disconnect (13).
- b. On left console, make sure comm lead (15) is connected to rear COMM receptacle (11) (76J-K031).
  - c. Connect headset/microphone assembly (3) to oxy/comm hose (12).

### 6. OPERATION.

- a. On ANT SEL control panel assembly (7, figure 1), set RADIO ORIDE/HOT MIC/COLD MIC switch to HOT MIC.
- b. In rear cockpit, on volume control panel assembly (10), set RADIO ORIDE/HOT MIC/COLD MIC to HOT MIC.
  - c. Apply electrical power (WP004 00).
- d. On GND PWR control panel assembly (6), set and hold 4 switch to A ON for three seconds.
  - e. In door 8, do the below:
- (1) On electrical cord assembly (2), press the push-to-talk switch.
- (2) On COMM CONT panel (5), adjust the VOL CONT for a comfortable audio level in headset.

- f. On Intercommunication Amplifier-Control AM-6979/A or AM-7360/A (8), adjust ICS VOL control for a comfortable audio level in headset.
- g. In rear cockpit, on volume control panel assembly (10), adjust ICS VOL control for a comfortable audio level in headsets.

### 7. DISCONNECTING.

- a. Remove electrical power from aircraft (WP004 00).
- b. On ground, do the substeps below:
- (1) On COMM CONT panel (5, figure 1), disconnect electrical cord assembly (2) from INTERCOM receptacle (4) (76J-B023B).
  - (2) Install cover (1) on INTERCOM receptacle (4) (76J-B023B).
  - (3) Close door 8 (A1-F18AC-LMM-010).
  - c. In cockpit, do the substeps below:
- (1) Disconnect headset/microphone assembly (3) from oxy/comm hose (12).
  - (2) Disconnect oxy/comm hose (12) from aircrew disconnect (13).

d. In rear cockpit, do the substeps below:

- (1) Disconnect headset/microphone assembly (3) from oxy/comm hose (12).
  - (2) Disconnect oxy/comm hose (12) from aircrew disconnect (13).

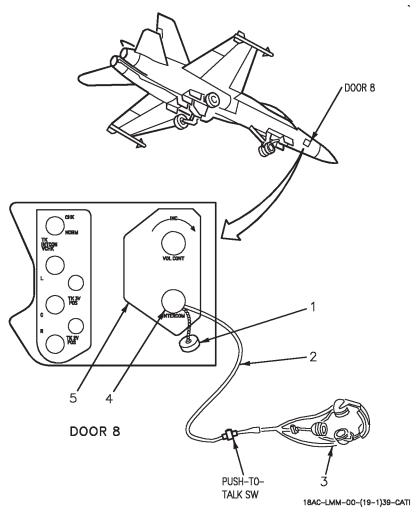
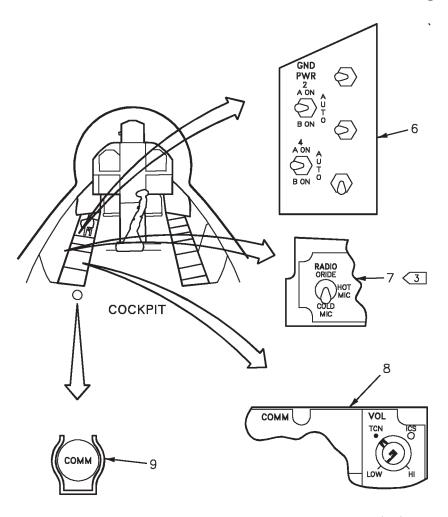
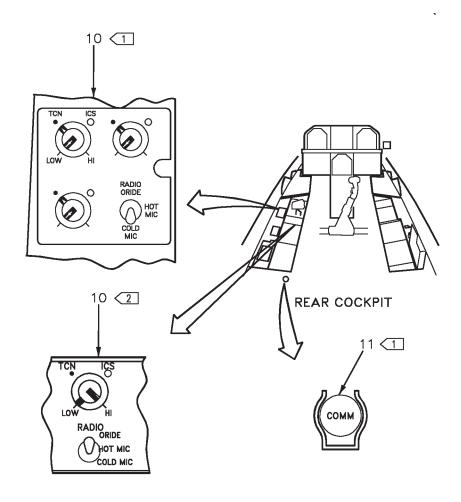


Figure 1. Ground Intercommunication Hookup Locator (Sheet 1)



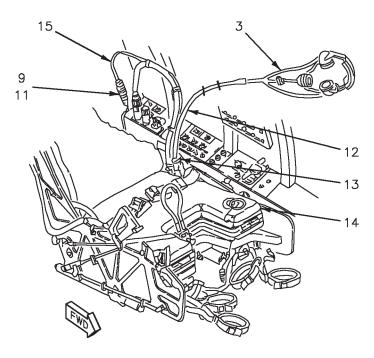
18AC-LMM-00-(19-2)39-CATI

Figure 1. Ground Intercommunication Hookup Locator (Sheet 2)



18AC-LMM-00-(19-3)39-CATI

Figure 1. Ground Intercommunication Hookup Locator (Sheet 3)



AIRCRAFT SEAT OXYGEN SURVIVAL KIT

(TYPICAL FOR COCKPIT AND REAR COCKPIT)

18AC-LMM-00-(19-4)39-SCAN

Figure 1. Ground Intercommunication Hookup Locator (Sheet 4)

NOMENCLATURE	INDEX NO.	Ref Des
AIRCRAFT SEAT OXYGEN	14	
SURVIVAL KIT		
AIRCREW DISCONNECT	13	
ANT SEL CONTROL PANEL	7	52A-H089
ASSEMBLY		
COMM CONT PANEL	5	76A-B023
COMM LEAD	15	
COMM RECEPTACLE	9	76J-H016
COVER	1	
ELECTRICAL CORD ASSEMBLY	2	
GND PWR CONTROL PANEL	6	1A-H004
ASSEMBLY		
HEADSET/MICROPHONE	3	
ASSEMBLY		
INTERCOMMUNICATION	8	76A-H009
AMPLIFIER-CONTROL AM-6979/A		
OR AM-7360/A		
INTERCOM RECEPTACLE	4	76J-B023B
OXY/COMM HOSE	12	
REAR COMM RECEPTACLE	11	76J-K031
VOLUME CONTROL PANEL	10	76A-K032
ASSEMBLY		

Figure 1. Ground Intercommunication Hookup Locator (Sheet 5)

012 00

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### **LEGEND**

1 F/A-18B, F/A-18D 163434 THRU 163778.

2 F/A-18D 163986 AND UP.

3 F/A-18B, F/A-18D.

Figure 1. Ground Intercommunication Hookup Locator (Sheet 6)

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **UTILITY ELECTRICAL POWER**

### **Reference Material**

### None

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Illustration	4
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Parts List	6
Support Equipment Required	2
Utility Power Adapter	3

# 013 00

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Utility Electrical Power Receptacle	3
Utility Power Adapter Hookup, Figure 2	5

### **Record of Applicable Technical Directives**

None

# **Support Equipment Required**

Part Number or Type Designation	Nomenclature		
74D420039-1001	Utility Power Adapter		

### **Materials Required**

None

### 1. UTILITY ELECTRICAL POWER RECEPTACLE.

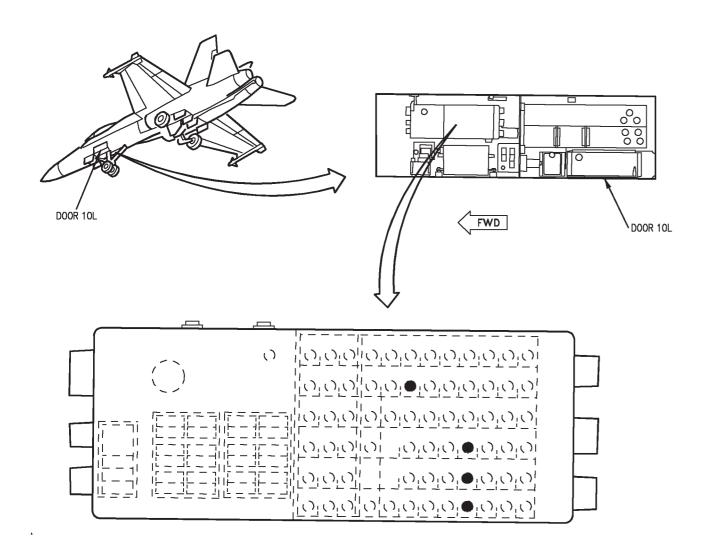
2. The utility power receptacle, shown on figure 2, provides an accessible point to get 115vac,  $3\phi$ , 400 Hz and 28vdc from left buses for use during ground operation. Utility power circuit breakers are shown on figure 1.

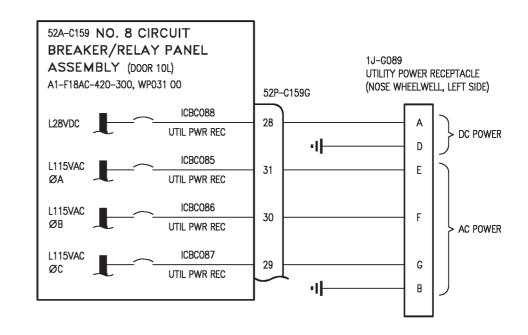
### 3. UTILITY POWER ADAPTER.

4. Utility power adapter hookup, shown on figure 2, provides connections for power cables for various pieces of test equipment to the utility power receptacle.

### 5. ILLUSTRATED PARTS BREAKDOWN.

6. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.



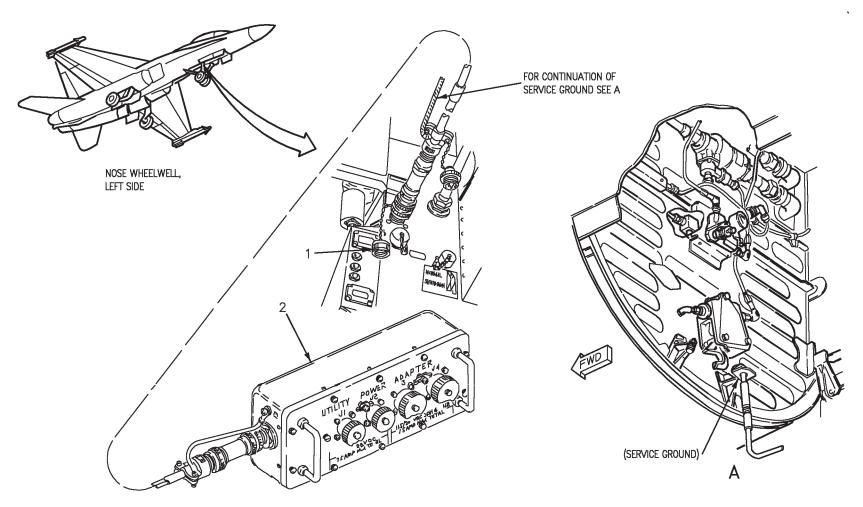


52A-0	52A-C159 NO. 8 CIRCUIT BREAKER/ RELAY PANEL ASSEMBLY				
ZONE REF DES NOMENCLATURE		NOMENCLATURE	BUS		
B6 F9 E9 D9	1CBC088 1CBC085 1CBC086 1CBC087	UTIL PWR REC UTIL PWR REC UTIL PWR REC UTIL PWR REC	L28VDC L115VACØA L115VACØB L115VACØC		

18AC-LMM-00-(65-1)-CATI

Figure 1. Utility Electrical Power Circuit Breakers

Figure 1. Figure 1.



18AC-LMM-00-(31-1)-CATI

Figure 2. Utility Power Adapter Hookup (Sheet 1)

Figure 2. Figure 2.

013 00

Page 6

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1 2	MS25043-18DA 74D420039-1001	UTILITY POWER ADAPTER HOOKUP  COVER	1 1		PAOZZ PEOGG

Figure 2. Utility Power Adapter Hookup (Sheet 2)

15 April 1996

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **CIRCUIT BREAKER PANELS**

Title	WP Numbe
Circuit Breaker Panels - F/A-18A AND F/A-18B	014 01
Circuit Breaker Panels - F/A-18C AND F/A-18D	$014 \ 02$

014 01

**Change 15 - 15 December 2001** 

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **CIRCUIT BREAKER PANELS**

EFFECTIVITY: F/A-18A AND F/A-18B

### Reference Material

None

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52A-D024 - 161353 THRU 161359, Figure 3	6

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No. 4 Circuit Breaker Panel Assembly -	
52A-D026 - 161353 THRU 161359, Figure 5	12
No. 4 Circuit Breaker Panel Assembly -	
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No. 5 Circuit Breaker Panel Assembly -	
52A-D092, Figure 7	17
RH Essential Circuit Breakers Control Panel Assembly -	
52A-J094. Figure 2	5

# **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 8	-	Power Level Control Actuator Circuit, Changes to (ECP- MDA-F/A-18-00041)	15 Nov 82	-
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorpora- tion of (ECP-MDA-F18- 00121)	1 Dec 85	-

014 01

Page 3

Change 10

# **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 49	-	GFE Sealed Lead Acid Battery, (SLAB) Addition of (ECP-MDA- F/A- 18-00074)	15 Dec 86	-
F/A-18 AFC 27	-	Leading Edge Flap/ Control Stick Changes (ECP- MDA-F/A-18- 00044C2)	15 Dec 86	-
F/A-18 AFC 54	-	Incorporation of Video Recording Set (ECP-MDA-F/A-18- 00027)	1 Apr 92	-
F/A-18 AFC 74	-	Additional Weapons Capability, Installa- tion of (ECP-MDA- F/A-18-00090C1)	1 Nov 92	-
F/A-18 AFC 231	-	Embedded GPS/INS Modification (ECP- MDA-F/A-18-00521)	15 Mar 97	-

014 01

Change 15

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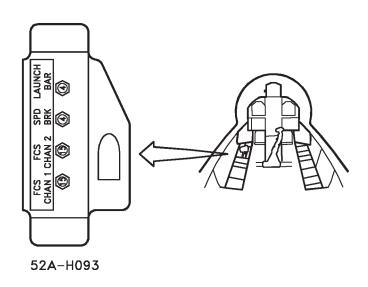
### **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	-	U.S. Naval Reserves A+ Avionics Up- grade, Incorporation of (ECP MDA-F/A- 18-00560)	15 Oct 00	-
F/A-18 AFC 292	-	U.S. Marine Corps Reserves A+ Avion- ics Upgrade, Incor- poration of (ECP- MDA-F/A-18-00583)	15 Oct 00	-
F/A-18 AFC 231 PT 2	-	Embedded Global Positioning System (GPS)/Inertial Navi- gation System (IN- S)(EGI), Incorpora- tion of (ECP-MDA- F/A-18-0521)	15 Dec 01	-
F/A-18 AFC 231 PT 3	-	Embedded Global Positioning System (GPS)/Inertial Navi- gation System (IN- S)(EGI), Incorpora- tion of (ECP-MDA- F/A-18-0521)	15 Dec 01	-

014 01

Change 10

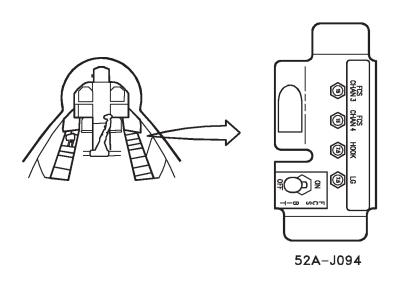
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52A-H093 LH ESSENTIAL CIRCUIT BREAKERS CONTROL PANEL ASSEMBLY				
REF DES	REF DES NOMENCLATURE BUS			
84CBH008 84CBH009 18CBH001 12CBH003	FCS CHAN 1 FCS CHAN 2 SPD BRK LAUNCH BAR	ESS 24/28VDC ESS 24/28VDC L 28VDC L 28VDC		

18AC-LMM-00-(4-1)-CATI

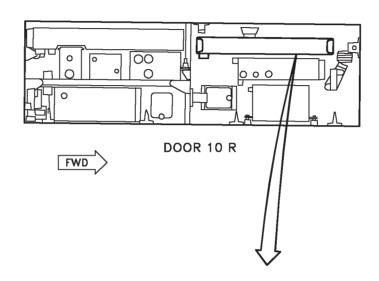
Figure 1. LH Essential Circuit Breakers Control Panel Assembly - 52A-H093

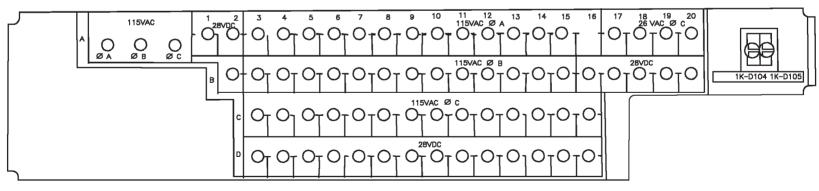


52A-J094 RH ESSENTIAL CIRCUIT BREAKERS CONTROL PANEL ASSEMBLY			
REF DES	REF DES NOMENCLATURE		
84CBJ010 84CBJ011 19CBJ001 12CBJ001	FCS CHAN 3 FCS CHAN 4 HOOK LG	R 28VDC R 28VDC R 28VDC R 28VDC	

18AC-LMM-00-(63-1)-CATI

Figure 2. RH Essential Circuit Breakers Control Panel Assembly - 52A-J094





52A-D024

18AC-LMM-00-(6-1)44-CATI

Figure 3. No. 2 Circuit Breaker Panel Assembly - 52A-D024-161353 THRU 161359 (Sheet 1)

52A-D024	NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
A0A A0B A0C A1 3 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 4 A15 A17 A18 A19 A20 3 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13	22CBD052 22CBD053 22CBD054 22CBD070 1CBD132 1CBD030 28CBD004 8CBD046 3CBD041 17CBD005 22CBD059 33CBD003 79CBD003 80CBD007 83CBD009 9CBD004 8CBD007 79CBD036 10CBD001 10CBD001 10CBD001 10CBD002 68CBD005 71CBD002 1CBD133 1CBD031 28CBD002 8CBD047 3CBD042 17CBD006 22CBD060 33CBD004 80CBD006 83CBD004 80CBD006 83CBD006 83CBD006 83CBD006 83CBD006 83CBD010 5CBD044	AVIONICS COOLING FAN AVIONICS COOLING FAN AVIONICS COOLING FAN GND CLG FANS CONT BATT CHG TRU XFMR RECT R AOA P HTR INT LTS CONT R BL AIR DR R WING FOLD R CABIN CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2 ICE DETR STROBE LT VIDEO TAPE RCDR HYD SYS NO 1 HYD SYS NO 1 HYD SYS NO 2 INS ADF BATT CHG TRU XFMR RECT R PITOT P HTR INT LTS CONT R BL AIR DR R WING FOLD R CABIN CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2	R 115VAC 0 A R 115VAC 0 B R 115VAC 0 C R 28VDC R 115VAC 0 A R 115VAC 0 C A R 115VAC 0 C R 115VAC 0 B

52A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
B14  4 B15  2 B16  B17  B18  B19  B20  C3  C4  C5  C6  C7  C8  C9  C10  C11  C12  C13  C14  C15  4 C16  D3  D4  D5  D6  D7  D8  D9  D10  D11  D12  D13  D14  D15  D16	1CBD037 79CBD037 1CBD074 9CBD002 9CBD006 12CBD006 12CBD001 1CBD032 1CBD134 8CBD043 17CBD007 22CBD061 33CBD005 79CBD005 80CBD009 83CBD011 22CBD034 67CBD003 1CBD045 79CBD0038 22CBD071 28CBD071 28CBD071 28CBD071 28CBD071 28CBD071 28CBD075 3CBD025 65CBD025 65CBD025 65CBD024 22CBD030 71CBD003 76CBD003 76CBD003 76CBD003	UTIL BAT HTR VIDEO TAPE RCDR UTIL BAT/CHGR ENGINE ICE DETR L/R ENG ANTI-ICE V LG CONT WSHLD AI/RAIN RMV XFMR RECT BATT CHG TRU INT LTS CONT R BL AIR DR R WING FOLD R CABIN CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2 ECS CONT ELEC ALT 26 VAC AUTO XFMR VIDEO TAPE RCDR UND COOL SENSOR PROBE HTR CONT INT LTS R BL DR/ENG CONT WINGFOLD CONT-A CAB CLG FAN CONT R BL AIR CONT R BL AIR CONT V HUD AN ALE 39 CONT AN ALE 39 PWR ECS CONT APC R-ENG ADF INTERCOM	R 115VAC Ø B R 115VAC Ø B R 115VAC Ø B R 28VDC R 28VDC R 28VDC R 28VDC R 115VAC Ø C R 28VDC

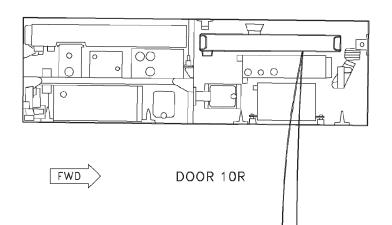
## 52A-D024

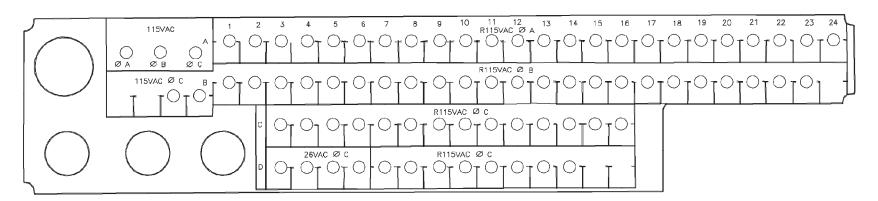
## **NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY**

REF DES	COMMON NAME
1K-D104	FLIGHT CONTROL GROUND POWER RELAY NO. 25
1K-D105	FLIGHT CONTROL GROUND POWER RELAY NO. 26

#### LEGEND

- 1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
- BEFORE F18 AFC 49.
- 3 AFTER F18 AFC 49.
- 4 AFTER F/A-18 AFC 54.





18AC-LMM-00-(72-1)44-CATI

Figure 4. No. 2 Circuit Breaker Panel Assembly-52A-D024-161360 AND UP (Sheet 1)

Change 2

52A-D024	NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
A- A- A- A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 B- B- B1 B2 B3 B4 B5 B6 B7 B8 B9	22CBD052 22CBD053 22CBD054 61CBD080 61CBD156 1CBD030 28CBD004 8CBD046 3CBD041 61CBD072 61CBD072 61CBD076 61CBD075 22CBD002 17CBD005 22CBD059 33CBD003 80CBD007 83CBD007 83CBD009 9CBD004 8CBD079 61CBD003 61CBD084 79CBD036 1CBD132 61CBD158 61CBD158 61CBD158 61CBD157 1CBD031 28CBD002 8CBD007 8CBD007 8CBD007 8CBD007 8CBD082 8CBD079 61CBD082 61CBD158 61CBD158 61CBD157 1CBD031 28CBD002 8CBD047 3CBD042 61CBD042 61CBD042 61CBD069 61CBD073 61CBD073 61CBD073 61CBD073 61CBD073	AVIONICS GND COOLING FAN Ø A AVIONICS GNG COOLING FAN Ø B AVIONICS GND COOLING FAN Ø C ARM STA 8 AMAC T/R R AOA P HTR INS LTS CONT R BLEED AIR DOOR ARM STA 5 ARM STA 6 ARM STA 7 HARM CSC BLANKER R WINGFOLD R CAB CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2 ICE DETECTOR STROBE LT SMS ARM STA 9 VIDEO TAPE RCDR BATT CHG TRU ARM STA 8 AMAC ARM STA 8 AMAC ARM STA 8 AMAC T/R R PITOT P HTR INS LTS CONT R BLEED AIR DOOR ARM STA 5 ARM STA 6	R 115VAC 0 A R 115VAC 0 B R 115VAC 0 C R 115VAC 0 A R 115VAC 0 C R 115VAC 0 A R 115VAC 0 B

52A-D024	NO.	2 CIRCUIT BREAKER PANEL ASSEMBI	_Y
ZONE	REF DES	NOMENCLATURE	BUS
B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 3 B22 2 B23 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12 C13 C14 C15 C16 D3 D4 4 D5 D6 D7 D8 D9 D10 D11 D12 3 D13	61CBD088 82CBD003 70CBD006 17CBD006 17CBD006 22CBD060 33CBD004 79CBD004 80CBD008 83CBD010 5CBD044 1CBD037 61CBD004 79CBD037 1CBD133 1CBD133 1CBD032 1CBD045 8CBD045 8CBD044 8CBD045 8CBD045 8CBD046 1CBD070 61CBD070 22CBD061 33CBD005 79CBD005 71CBD002 68CBD005 71CBD002 68CBD009 83CBD011 22CBD034 67CBD003 61CBD003 61CBD005 79CBD003	HARM CSC ADC R WINDFOLD R CAB CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2 FUEL QUAN IND UTIL BATT HTR SMS VIDEO TAPE RCDR BATT CHG TRU T/R 26VAC AUTO XFMR INS LTS CONT R BLEED AIR DOOR ARM STA 5 ARM STA 6 ARM STA 7 HARM CSC TACAN R WINGFOLD R CAB CLG FAN STBY ATT IND HUD HYD SYS NO 1 HYD SYS NO 1 HYD SYS NO 2 INS ADF MISSION CMPTR NO 2 ECS CONT ELEC ALT SMS APPROACH LTS VIDEO TAPE RCDR	R 115VAC 0 B R 115VAC 0 C

Change 15

52A-D024	NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES NOMENCLATURE			
2 D14	1CBD134	BATT CHG TRU	R 115VAC Ø C	

#### LEGEND

- 1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010

  2 161702 AND UP; ALSO 161360 THRU 161528 AFTER F18 AFC 49.

  3 161702 AND UP; ALSO 161360 THRU 161528 AFTER F/A-18 AFC 54.

  4 161360 THRU 161924; ALSO 161925 THRU 163175 BEFORE
  - F/A-18 AFC 231, F/A-18 AFC 231 PT 2, OR F/A-18 AFC 231 PT 3.

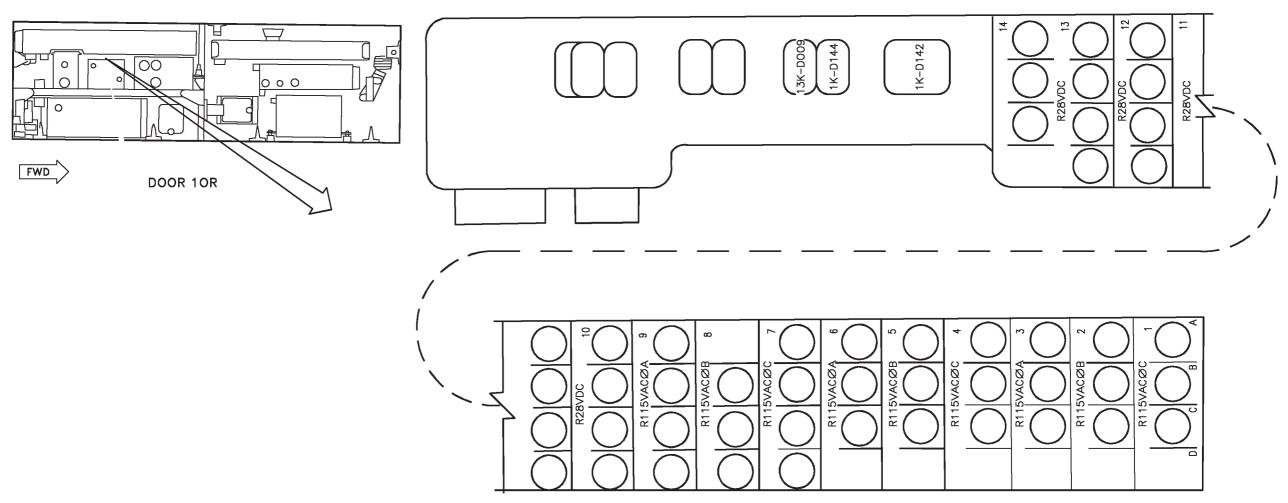


Figure 5. No. 4 Circuit Breaker Panel Assembly - 52A-D026-161353 THRU 161359 (Sheet 1)

18AC-LMM-00-(7-1)44-SCAP

Change 10

52A-D026	NO.	4 CIRCUIT BREAKER PANEL ASSEMBL	_Y
ZONE	REF DES	NOMENCLATURE	BUS
A1 A2 A3 A4 A5 A6 A7 A9 A10 A11 A12 A13 A14 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11	61CBD082 61CBD081 61CBD080 61CBD070 61CBD069 61CBD068 34CBD002 61CBD084 61CBD067 61CBD066 76CBD014 34CBD006 76CBD014 34CBD001 61CBD158 61CBD157 61CBD073 61CBD073 61CBD073 61CBD073 61CBD075 61CBD005 61CBD005 61CBD005 61CBD008 61CBD089 61CBD087 76CBD088 61CBD088 61CBD088 61CBD088 61CBD088 61CBD088 61CBD089 61CBD077 61CBD076 82CBD004 82CBD004 82CBD004 82CBD003 82CBD004 82CBD003 82CBD004 82CBD004 82CBD006 61CBD076	ARM STA 8 ARM STA 8 ARM STA 8 ARM STA 5 ARM STA 5 ARM STA 5 ARM STA 5 APRCH LTS ARM STA 9 ARM STA 8 ARM STA 5 SMS UHF R/T NO 2 APRCH LTS AMAC AMAC AMAC AMAC ARM STA 6 CSC ANT SEL ARM STA 9 HARM HARM HARM HARM HARM ARM STA 7 CSC CSC CSC CSC CSC CSC CSC CSC CSC CS	R 115VAC 0 C R 115VAC 0 B R 115VAC 0 A R 115VAC 0 C R 28VDC R 28VDC R 28VDC R 28VDC R 28VDC R 115VAC 0 C R 115VAC 0 C R 115VAC 0 B R 115VAC 0 C R 115VAC 0 B R 115VAC 0 C R 115VAC 0 C R 115VAC 0 B R 115VAC 0 C R 115VAC 0 B R 115VAC 0 C R 115VAC 0 B R 115VAC 0 C R 115VAC 0 C R 28VDC R 28VDC R 28VDC R 28VDC R 115VAC 0 C R 115VAC 0 A R 115VAC 0 A

52A-D026	NO.	NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS	
C12	61CBD149	5 STA 8 AERO 5 6 STA 8 28VDC	R 28VDC	
C13	61CBD146	5 STA 7 AERO 5 6 STA 7 28VDC	R 28VDC	
C14	72CBD007	BEACON R/T AUG	R 28VDC	
D7	69CBD004	TACAN	R 115VAC Ø C	
D8	70CBD006	ADC	R 115VAC Ø B	
D9	66CBD002	BLANKER	R 115VAC Ø A	
D10	3CBD062	THROTTLE BOOST	R 28VDC	
D11	22CBD037	CABIN RAM AIR	R 28VDC	
D12	61CBD221	LST/SCAM POD	R 28VDC	
4 D13	79CBD039	VIDEO TAPE RCDR	R 28VDC	

#### 52A-D026

## **NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY**

REF DES	COMMON NAME
3 1K-D142 3 1K-D144 3 13K-D009	GENERATOR AUTO RESET RELAY GENERATOR TIE LOCKOUT RELAY PARKING BRAKE RELAY

#### LEGEND

- 1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
- BEFORE F/A-18 AFC 8.
- 3 AFTER F/A-18 AFC 48.
- 4 AFTER F/A-18 AFC 54.
- 5 161355,161356 AND 161359; ALSO 161353, 161354, 161357 AND 161358 BEFORE F/A-18 AFC 74.
- 6 161353, 161354, 161357 AND 161358 AFTER F/A-18 AFC 74.

re 5. Figure 5. No. 4 Circuit Breaker Panel Assembly - 52A-D026 - 161353 THRU 161359 (Sheet 2)

Change 10

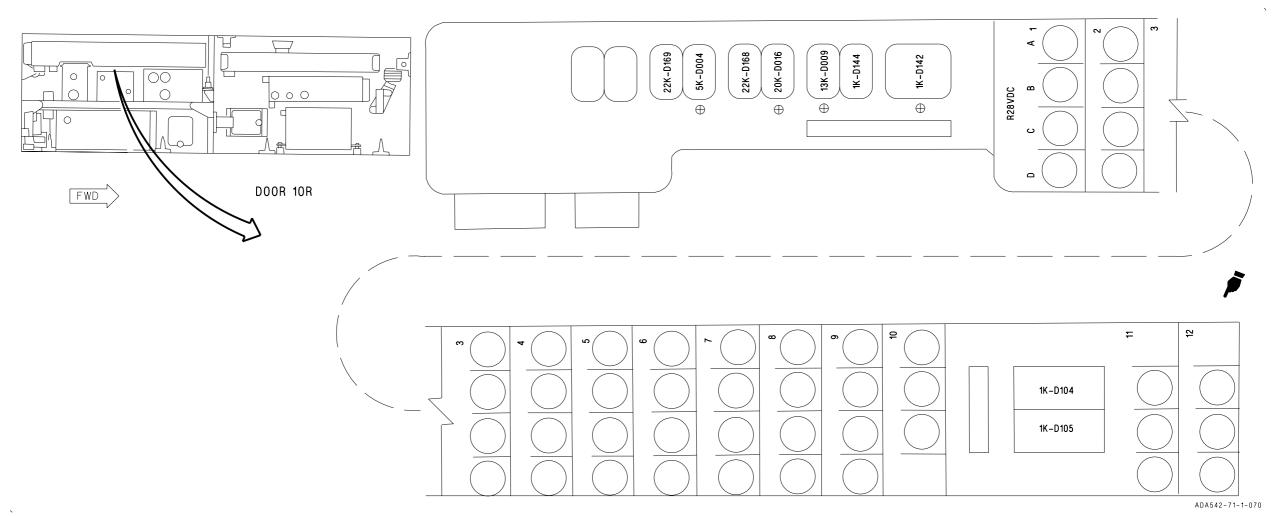


Figure 6. No. 4 Circuit Breaker Panel Assembly - 52A-D026-161360 AND UP (Sheet 1)

Figure 6.

Change	10

52A-D026	NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B1 B12 C1 C2 C3	34CBD001 76CBD014 61CBD006 61CBD067 61CBD067 61CBD079 3CBD029 22CBD070 9CBD002 65CBD025 79CBD002 61CBD083 76CBD030 82CBD005 61CBD056 61CBD066 65CBD024 71CBD003 61CBD085 61CBD086 72CBD007 76CBD086 72CBD007 76CBD095 61CBD086 72CBD007 76CBD025 61CBD149	APPROACH LTS UHF R/T NO 2 SMS ARM STA 5 ARM STA 8 R BLEED AIR DOOR/ENG CONT GND CLG FANS CONT ENG ICE DETECTOR AN ALE 39-CONT HUD ARM STA 9 ANT SELECT CSC ARM STA 6 AMAC R BLEED AIR CONT VALVES CAB CLG FAN CONT L/R ENG ANTI-ICE V AN ALE 39-PWR ADF ARM STATION 5 28 VDC 1 ARM STATION 5 28 VDC 2 BCN R/T AGMT INTERCOM 5 STA 8 AERO 5	R 28VDC
C4 C5 C6 C7 C8 C9 C10 12 C11 12 D1 D1 D1 D2 D3	61CBD075 61CBD090 22CBD020 22CBD071 23CBD001 84CBD030 8CBD005 61CBD053 61CBD054 12CBD002 1CBD074 61CBD221	10 STA 8 28VDC ARM STA 7 HARM ECS CONT UND COOL SENSOR WSHLD ANTI-ICE/RAIN REM APC INT LTS ARM STATION 6 28 VDC 1 ARM STATION 6 28 VDC 2 LDG CONT UTIL BATT/CHGR LST/SCAM POD	R 28VDC

52A-D026	NO.	4 CIRCUIT BREAKER PANEL ASSEMBL	.Y
ZONE	REF DES	NOMENCLATURE	BUS
D4	61CBD146	5 STA 7 AERO 5 10 STA 7 28VDC	R 28VDC
7 D5 D6 D7 D8 D9 12 D11 12 D12	22CBD173 22CBD037 17CBD001 28CBD007 79CBD039 61CBD182 61CBD187	CABIN EXIT AIR CONT CABIN RAM AIR VALVE WINGFOLD CONT - A PROBE HTR CONT VIDEO TAPE RCDR ARM STA 7 28 VDC 2 ARM STA 8 28 VDC 2	R 28VDC R 28VDC R 28VDC R 28VDC R 28VDC R 28VDC R 28VDC R 28VDC

## 52A-D026

## **NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY**

REF DES	COMMON NAME
1K-D104	FLIGHT CONTROL GROUND POWER RELAY NO. 25
1K-D105	FLIGHT CONTROL GROUND POWER RELAY NO. 26
6 1K-D142	GENERATOR AUTO RESET RELAY
6 1K-D144	GENERATOR TIE LOCKOUT RELAY
7 5K-D004	IFR SWITCH POSITION RELAY
6 13K-D009	PARKING BRAKE RELAY
8 20K-D016	CANOPY LOCKED RELAY
9 20K-D016	CANOPY UNLOCKED RELAY
7 20K-D168	AIRSPEED RELAY
8 22K-D169	TOTAL TEMPERATURE RELAY

014 01

Change 10

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#### LEGEND

#### ⊕ LOW LEVEL RELAY SYMBOL

F/A-18 AFC 292

1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010 3 161702 AND UP: ALSO 161360 THRU 161528 AFTER F/A-18 AFC 54 ▶ 161360 THRU 161528 BEFORE F/A-18 AFC 49 5 161360 THRU 161987 BEFORE F/A-18 AFC 74 6 162394 AND UP; ALSO 161360 THRU 161987 AFTER F/A-18 AFC 48 ▶ 163092 AND UP 8 F/A-18B 163104 AND UP 9 F/A-18A 163092 AND UP 10 162394 AND UP; ALSO 161360 THRU 161987 AFTER F/A-18 AFC 74 11 F/A-18A 161353 THRU 162477, F/A-18B; ALSO F/A-18A 162836 THRU 163175 BEFORE F/A-18 AFC 253 12 F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR

Figure 6. No. 4 Circut Breaker Panel Assembly - 52A-D026 - 161360 AND UP (Sheet 3)

Change 10

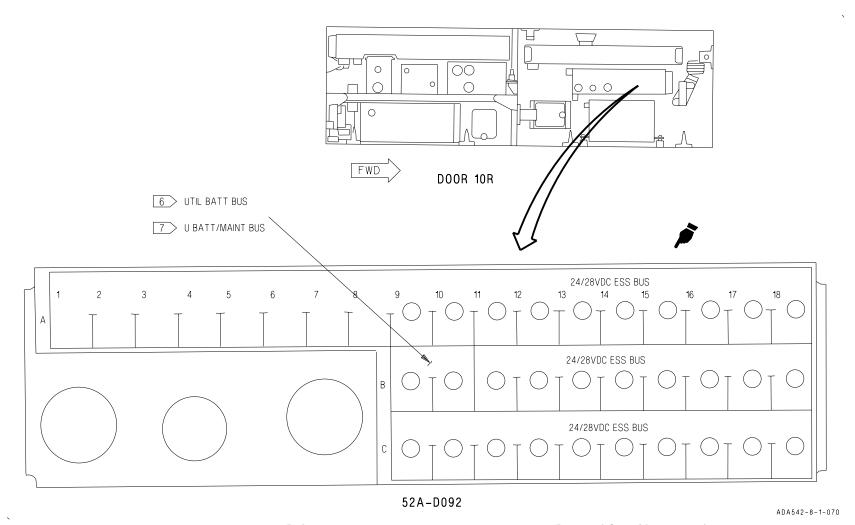


Figure 7. No. 5 Circuit Breaker Panel Assembly - 52A-D092 (Sheet 1)

Figure 7.

Change 10

52A-D092	NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
A9 A10 A11 A12 A13 A14 9 A15 2 A16 3 A16 A17 4 A18 B9	5CBD063 5CBD064 5CBD065 5CBD066 61CBD135 61CBD002 78CBD009 8CBD003 8CBD003 4CBD001 84CBD001 84CBD0080 84CBD098	FUEL DUMP R/FUEL S/O VALVE CROSSFEED FUEL VLV L/FUEL S/O VALVE ARM STA 8 SMS CIT ANN LTS INT LTS FIRE DET LOOP A ASYM BK FCC A FCC B CH 3	ESS 24/28VDC TO UTIL BATT 24VDC
B10	84CBD099	FCC B CH 4	24/28VDC 6 UTIL BATT 24VDC 7 U BATT/MAINT
B11 B12 B13 5 B14 8 B14 B15 B16 B17 B18 C9 C10	61CBD136 61CBD134 3CBD077 12CBD028 12CBD028 22CBD094 8CBD004 4CBD100 3CBD052 12CBD070 12CBD071	ARM STA 6 ARM STA 7 L ENG IND LDG GR CONT UNIT NG RLY CONT FCS RM AIR DR ACTR UTIL LT FEXT ENG MON LMG RLY CONT RMG RLY CONT	24/28VDC ESS 24/28VDC

52A-D092	NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
C11 C12 C13 C14 C15 C16 C17	61CBD130 61CBD131 3CBD076 33CBD010 22CBD104 24CBD001 33CBD001 76CBD015	ARM STA 2 ARM STA 3 R ENG IND STBY ADI CAB AIR DUMP VLV BL AIR LKG DET-B STBY ALTM UHF XCVR NO. 1	ESS 24/28VDC

#### LEGEND

1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010 2 161353 THRU 161359 3 161360 AND UP 4 161353 THRU 161519 BEFORE F/A-18 AFC 27 5 161353 THRU 161361 6 161353 THRU 161528 BEFORE F/A-18 AFC 49 7 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 49 8 161362 AND UP ▶ F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292 ■

Change 13 - 15 July 2001

# ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

#### **CIRCUIT BREAKER PANELS**

EFFECTIVITY: F/A-18C AND F/A-18D

#### **Reference Material**

None

## **Alphabetical Index**

Subject	Page No
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52A-D024, Figure 3	5
No. 4 Circuit Breaker Panel Assembly -	
52A-D026, Figure 4	8

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RH Essential Circuit Breakers Control Panel Assembly - 52A-J094, Figure 2	4

# **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP or RAMEC No.	Date In- corp.	Remarks
F/A-18 AFC 207	-	F/A-18C/D Cockpit Video Recording System (CVRS) Ret- rofit, Installation of (ECP NI-818R1)	1 Oct 97	-
F/A-18 AFC 270	-	Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), Incorporation of (ECP-MDC-F/A-18-00577)	15 Jul 01	-

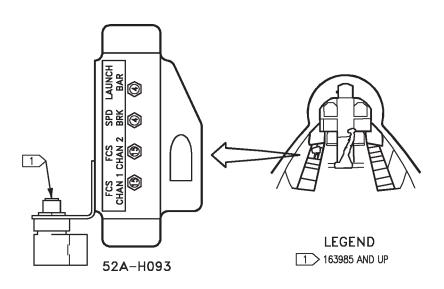
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# **Record of Applicable Technical Directives (Continued)**

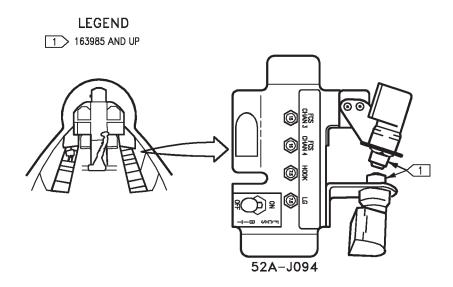
Type/ Number	Date	Title and ECP or RAMEC No.	Date In- corp.	Remarks
F/A-18 AFC 236	-	AN/APX-111 (V) Combined Interrogator/ Transponder (CIT) Identification Friend or Foe (IFF) Sys- tem, Retrofit of (WUC 653D0) (ECP MDA-F/A-18- 00520R1)	1 May 00	
F/A-18 AFC 258	-	Crash Survivable Flight Incident Recorder (CSFIRS) Installation of (ECP MDA-F/A-18-00573)	1 May 00	-
F/A-18 AFC 175 Part 2	-	Miniaturized Airborne Global Positioning System (GPS) Receiver (MAGR), Incorporation of (ECP MDA-F/A-18-0405A1)	15 Jun 00	-



52A-H093 LH ESSENTIAL CIRCUIT BREAKERS CONTROL PANEL ASSEMBLY			
REF DES	NOMENCLATURE BUS		
84CBH008 84CBH009 18CBH001 12CBH003	FCS CHAN 1 FCS CHAN 2 SPD BRK LAUNCH BAR	ESS 24/28VDC ESS 24/28VDC L 28VDC L 28VDC	

18AC-LMM-00-(105-1)35-CATI

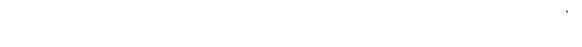
Figure 1. LH Essential Circuit Breakers Control Panel Assembly - 52A-H093

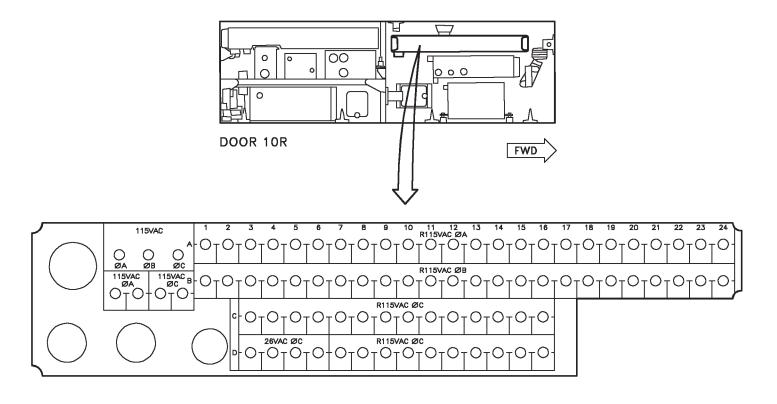


52A-J094 RH ESSENTIAL CIRCUIT BREAKERS CONTROL PANEL ASSEMBLY			
REF DES	NOMENCLATURE	BUS	
84CBJ010 84CBJ011 19CBJ001 12CBJ001	FCS CHAN 3 FCS CHAN 4 HOOK LG	R 28VDC R 28VDC R 28VDC R 28VDC	

18AC-LMM-00-(106-1)35-CATI

Figure 2. RH Essential Circuit Breakers Control Panel Assembly - 52A-J094





18AC-LMM-00-(107-1)53-CATI

Figure 3. No. 2 Circuit Breaker Panel Assembly - 52A-D024 (Sheet 1)

Change 13

52A-D024	A-D024 NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
A- A- A- A- A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22  4 A23 B-	22CBD052 22CBD053 22CBD054 61CBD080 61CBD156 1CBD030 28CBD004 8CBD046 3CBD041 61CBD072 61CBD076 61CBD087 82CBD002 66CBD002 17CBD005 22CBD059 33CBD003 79CBD003 80CBD007 83CBD009 9CBD004 8CBD079 61CBD084 79CBD036 1CBD084 79CBD036 1CBD084 79CBD036 1CBD082 61CBD082 61CBD132 89CBD060 89CBD062 61CBD082 61CBD158 61CBD081 61CBD157 1CBD031 28CBD002 8CBD004	AVIONICS GND COOLING FAN Ø A AVIONICS GND COOLING FAN Ø B AVIONICS GND COOLING FAN Ø C ARM STA 8 AMAC T/R R AOA P HTR INT LTS CONT R BLEED AIR DOOR ARM STA 5 ARM STA 6 ARM STA 7 HARM CSC BLANKER R WINGFOLD R CAB CLG FAN STBY ATT IND HUD MFD MISSION CMPTR NO 2 ICE DETECTOR STROBE LT SMS ARM STA 9 VIDEO TAPE RCDR VIDEO RCDR SYS BATT CHG TRU RECCE WINDOW ADP PWR ARM STA 8 AMAC ARM STA 8 AMAC T/R R PITOT P HTR INT LTS CONT R BLEED AIR DOOR	R 115VAC 0 A R 115VDC 0 B R 115VDC 0 C R 115VAC 0 A R 115VAC 0 C R 115VAC 0 B	

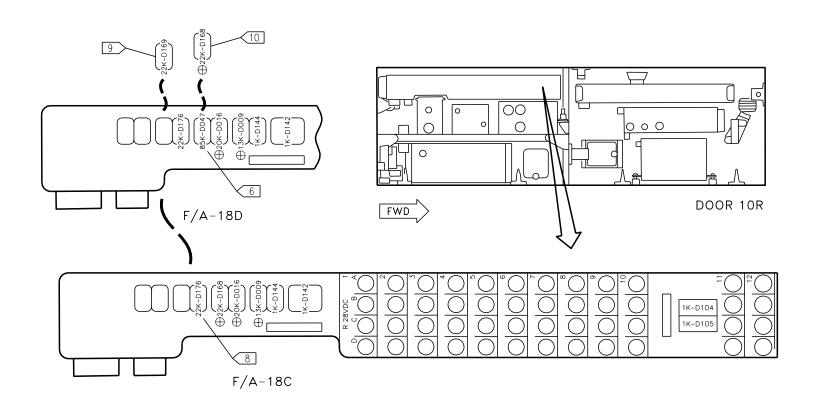
52A-D024	NO.	NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS		
В7	61CBD069	ARM STA 5	R 115VAC 0		
B8	61CBD073	ARM STA 6	R 115VAC 0		
B9	61CBD077	ARM STA 7	R 115VAC Ø		
B10	61CBD088	HARM	R 115VAC Ø		
B11	82CBD003	CSC	R 115VAC 0		
B12	70CBD006	ADC	R 115VAC 0		
B13	17CBD006	R WINDFOLD	R 115VAC 0		
B14	22CBD060	R CAB CLG FAN	R 115 VAC 0		
B15	33CBD004	STBY ATT IND	R 115VAC 0		
B16	79CBD004	HUD	R 115VAC 0		
B17	80CBD004	MFD	R 115VAC 0		
B18	83CBD000	MISSION CMPTR NO 2	R 115VAC 0		
2 B19	8CBD049	N/A CHART LT	R 115VAC 0		
B20	1CBD037	UTIL BATT HTR	R 115VAC Ø		
B20 B21	61CBD037	SMS	R 115VAC Ø		
	79CBD037	VIDEO TAPE RCDR	R 115VAC Ø		
4 B22 5 B22	79CBD037 79CBD037	VIDEO TAPE RCDR VIDEO RCDR SYS	R 115 VAC Ø		
B23	1CBD133	BATT CHG TRU	R 115VAC Ø		
3 B23 B24					
	89CBD063	ADP PWR	R 115VAC Ø		
C3	1CBD032	T/R	R 115VAC 0		
C4	1CBD045	26VAC AUTO XFMR	R 115VAC 0		
C5	8CBD048	INT LTS CONT	R 115VAC Ø		
C6	3CBD043	R BLEED AIR DOOR	R 115VAC Ø		
C7	61CBD070	ARM STA 5	R 115VAC 0		
C8	61CBD074	ARM STA 6	R 115VAC 0		
C9	61CBD078	ARM STA 7	R 115VAC 0		
C10	61CBD089	HARM	R 115VAC 0		
C11	82CBD004	CSC	R 115VAC Ø		
C12	69CBD004	TACAN	R 115VAC Ø		
C13	17CBD007	R WINGFOLD	R 115VAC 0		
C14	22CBD061	R CAB CLG FAN	R 115VAC Ø		
C15	33CBD005	STBY ATT IND	R 115VAC 0		
C16	79CBD005	HUD	R 115VAC Ø		
D3	10CBD001	HYD SYS NO 1	R 26VAC Ø		
D4	10CBD002	HYD SYS NO 2	R 26VAC Ø		
8 D5	68CBD005	INS	R 26VAC Ø		
9 D5	71CBD002	ADF	R 26VAC Ø		
8 D6	71CBD002	ADF	R 26VAC Ø		
9 D6	71CBD029	LDG/TAXI	R 115VAC Ø		

HT-L	TQH	C-LI	VI IV	<b> -</b>
Change	13			

52A-D024	NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
D7 D8 D9 D10 D11 D12 4 D13 5 D13 D14 3 D15 7 D16	80CBD009 83CBD011 22CBD034 67CBD003 61CBD005 34CBD002 79CBD038 79CBD038 1CBD134 89CBD064 91CBD004	MFD MISSION CMPTR NO 2 ECS CONT ELEC ALT SMS APPROACH LTS VIDEO TAPE RCDR VIDEO RCDR SYS BATT CHG TRU ADP PWR GPS PWR	R 115VAC 0 C	

LEGEND

1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
2 163985 AND UP
3 F/A-18D 164279 AND UP
4 163427 THRU 163782; ALSO 163985 THRU 164912 BEFORE
F/A-18 AFC 207
5 164945 AND UP; ALSO 163985 THRU 164912 AFTER F/A-18 AFC 207
6 DELETED
7 164945 AND UP; Also 163427 THRU 164912 AFTER F/A-18 AFC 175
PART 2
8 BEFORE F/A-18 AFC 270
9 AFTER F/A-18 AFC 270



18AC-LMM-00-(108-1)56-C

Figure 4. No. 4 Circuit Breaker Panel Assembly - 52A-D026 (Sheet 1)

# A1-F18AC-LMM-000

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52A-D026	NO.	NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS		
A1 A2 A3 A4 A5 A6 A7 A8 A8 A9 A10 A9 A10 A12 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 C12	34CBD001 76CBD014 61CBD006 61CBD067 61CBD079 3CBD029 22CBD070 9CBD002 65CBD025 65CBD025 65CBD025 79CBD002 65CBD033 76CBD030 82CBD005 61CBD071 61CBD159 22CBD036 22CBD036 62CBD024 65CBD024 65CBD024 65CBD024 65CBD024 65CBD025 61CBD077 76CBD086 72CBD007 76CBD085 61CBD085 61CBD085 61CBD085 61CBD085 61CBD085 61CBD085 61CBD090 22CBD007 76CBD0025 61CBD090 22CBD001 84CBD030 8CBD005 61CBD053 61CBD053	APPROACH LTS UHF R/T NO 2 SMS ARM STA 5 ARM STA 8 R BLEED AIR DOOR/ENG CONT GND CLG FANS CONT ENG ICE DETECTOR AN ALE 39-CONT AN/ALE-47 CONT HUD AN/ALE-47 PWR-2 SBTCS VLV 28 VDC ARM STA 9 ANT SELECT CSC ARM STA 6 AMAC R BLEED AIR CONT VALVES CAB CLG FAN CONT L/R ENG ANTI-ICE V AN ALE 39-PWR AN/ALE-47 PWR-1 ADF ARM STA 5 28 VDC 1 ARM STA 5 28 VDC 2 BCN R/T AGMT INTERCOM ARM STA 7 HARM ECS CONT UND COOL SENSOR WSHLD ANTI-ICE/RAIN REM APC INT LTS ARM STA 6 28 VDC 1	R 28VDC		

52A-D026	NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	BUS		
D1 7 D2 16 D2 D3 D4 D5 D6 D7 D8 11 D9 12 D9 5 D10 D11 D12	12CBD002 85CBD046 85CBD046 61CBD221 61CBD146 22CBD173 22CBD037 17CBD001 28CBD007 79CBD039 79CBD039 8CBD197 61CBD182 61CBD187	LDG CONT DFIRS POWER CSFIRS LST/SCAM POD ARM STA 7 28 VDC 1 CABIN EXIT AIR CONT CABIN RAM AIR VALVE WINGFOLD CONT - A PROBE HTR CONT VIDEO TAPE RCDR VIDEO RCDR SYS NVG FLDT CONT ARM STA 7 28 VDC 2 ARM STA 8 28 VDC 2	R 28VDC		

## 52A-D026

## **NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY**

REF DES	COMMON NAME
1K-D104	FLIGHT CONTROL GROUND POWER RELAY NO. 25
1K-D105	FLIGHT CONTROL GROUND POWER RELAY NO. 26
1K-D142	GENERATOR AUTO RESET RELAY
1K-D144	GENERATOR TIE LOCKOUT RELAY
13K-D009	PARKING BRAKE RELAY
3 20K-D016	CANOPY LOCKED RELAY
4 20K-D016	CANOPY UNLOCKED RELAY
13 22K-D168	AIRSPEED RELAY
9 22K-D169	TOTAL TEMPERATURE RELAY
22K-D176	ASPJ TRANSMIT OFF RELAY
6 85K-D047	PALLET COOLING VALVE

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#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA
- 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
  - 3 F/A-18D
    - 4 F/A-18C
  - 5 163985 AND UP
- 6 F/A-18D 164279 AND UP
- 7 164627 AND UP
- 8 F/A-18C 163427 THRU 164278
- 9 F/A-18D 163434 THRU 164279
- 10 F/A-18D 163434 THRU 164272
- 11 163427 THRU 163782; ALSO 163985 THRU 164912 BEFORE F/A-18 AFC 207
- 12 164945 AND UP; ALSO 163985 THRU 164912 AFTER F/A-18 AFC 207
- 13 F/A-18C, F/A-18D 163434 THRU 164272
- 14 163427 THRU 164980
- 15 165171 AND UP
- 163429 THRU 164279 AFTER F/A-18 AFC 258

# Figure 4. No. 4 Circuit Breaker Panel Assembly - 52A-D026 (Sheet 3)

Change 5

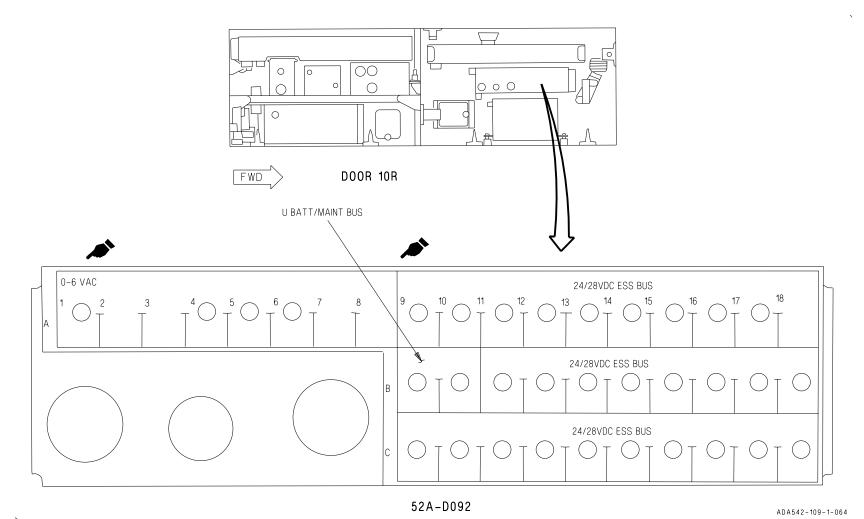


Figure 5. No. 5 Circuit Breaker Panel Assembly - 52A-D092 (Sheet 1)

Figure 5. 52A-D092 (Sheet

Change 5

52A-D092	2A-D092 NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	BUS		
2 A1 3 A4 3 A5 3 A6 A9 A10 A11 A12 A13 A14 5 A15 A16 A17 4 B9 4 B10 B11 B12 B13 B14 B15 B16 B17 B18 C9 C10 C11 C12 C13 C14 C15 C16 C17 C18	8CBD211 84CBD098 84CBD099 61CBD353 5CBD063 5CBD064 5CBD065 5CBD066 61CBD135 61CBD002 78CBD009 8CBD003 4CBD001 84CBD099 61CBD136 61CBD136 61CBD136 61CBD134 3CBD077 12CBD028 22CBD094 8CBD004 4CBD100 85CBD041 12CBD070 12CBD071 61CBD130 61CBD131 3CBD076 33CBD076 33CBD010 22CBD104 24CBD001 33CBD001 76CBD015	CHART LT AFT CREW FCCB CH 3 FCCB CH 4 SMS LOAD FUEL DUMP R/FUEL S/O VALVE CROSSFEED FUEL VLV L/FUEL S/O VALVE ARM STA 8 SMS CIT INT LTS FIRE DET LOOP A FCC B CH 3 FCC B CH 4 ARM STA 6 ARM STA 7 L ENG IND NG RLY CONT FCS RM AIR DR ACTR UTIL LT FEXT INT FUEL-ENG IND LMG RLY CONT RMG RLY CONT RMG RLY CONT RMG RLY CONT RMG RLY CONT ARM STA 2 ARM STA 3 R ENG IND STBY ADI CAB AIR DUMP VLV BL AIR LKG DET-B STBY ALTM UHF XCVR NO. 1	0-6 VAC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC ESS 24/28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC ESS 24/28VDC		

Figure 5. No. 5 Circuit Breaker Panel Assembly - 52A-D092 (Sheet 2)

Figure 5.

014 02

Change 7

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#### **LEGEND**

- 1. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
  - 2 F/A-18D 163986 AND UP
  - 3 165207 AND UP
  - 4 163457 THRU 165206
  - 5 165222 AND UP; ALSO 163985 THRU 165221 AFTER F/A-18 AFC 236

Figure 5. No. 5 Circuit Breaker Panel Assembly - 52A-D092 (Sheet 3)

15 April 1996

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# ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

#### **CIRCUIT BREAKER/RELAY PANELS**

Title	WP Number
Circuit Breaker/Relay Panels -F/A-18A AND F/A-18B	015 01
Circuit Breaker/Relay Panels -F/A-18C AND F/A-18D	$015 \ 02$

Change 15 - 15 December 2001

015 01

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

LINE MAINTENANCE PROCEDURES

**CIRCUIT BREAKER/RELAY PANELS** 

EFFECTIVITY: F/A-18A AND F/A-18B

#### **Reference Material**

#### None

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Figure 5	24
No. 4 Relay Panel Assembly, 52A-N118, Figure 6	26
No. 7 Circuit Breaker/Relay Panel Assembly -	
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015 01

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THRU 161987 AFTER F/A-18 AFC 48,	
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F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC	
253 OR F/A-18 AFC 292, Figure 9	31

# **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 8	-	Power Level Control Actuator Circuit, Changes to (ECP- MDA-F/A-18-00041)	15 Nov 82	-

015 01

Change 10 Page 3

# **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorpora- tion of (ECP-MDA- F/A- 18-00121)	1 Dec 85	-
F/A-18 AFC 53	-	Elimination of Tanks 1 and 4 Sneak Circuit, Tank 4 Motive Flow Shutoff Valve and Raised Inverted Baffle (ECP-MDA- F/A- 18A-18- 00055C1)	15 Jun 86	-
F/A-18 AFC 27	-	Leading Edge Flap/ Control Stick Changes (ECP- MDA-F/A-18- 00044C2)	15 Dec 86	-
F/A-18 AFC 49	-	GFE Sealed Lead Acid Battery (SLAB) Addition of (ECP- MDA-F/A- 18-00074)	15 Dec 86	-

015 01

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Page 4

# **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 86	<del>-</del>	Removal of Longitudinal Control Stick Stop at 25 LB, Aft Position, and Installation of Matched Increased Torque and U-Joints to Leading Edge Flap Mechanism (ECP-MDA-F/A-18-000142R2)	15 Dec 86	-
F/A-18 AFC 39	-	No. Fuel Tank Interconnect Valve Replacement of; and Fuel Sequencing, Modification of (ECP-MDA-F/A-18- 00072C1)	15 Jan 89	-
F/A-18 AFC 90	-	Automatic Battery Cutoff (ECP MDA- F/A-18-00165R1)	1 Mar 90	-

015 01

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Page 5

## **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 54	-	Incorporation of a Video Recording Set (ECP-MDA-F/A-18- 00027)	1 Apr 92	-
F/A-18 AFC 81	-	Secondary Power System APU Surge Control Valve Air- craft Wiring Modifi- cation (ECP-MDA- F/A-18-00231)	1 Apr 92	-
F/A-18 AFC 41	-	Throttle Thrust Sensitivity, Reduc- tion of (WUC 29130)	1 Nov 92	-
F/A-18 AFC 74	-	Additional Weapons Capability, Installa- tion of (ECP-MDA- F/A-18-00090C1)	1 Nov 92	-
F/A-18 AFC 231	-	Embedded GPS/INS Modification (ECP- MDA-F/A-18-00521)	15 Mar 97	-

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Page 6

## **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 231 PT 2	-	Embedded Global Positioning System (GPS)/Inertial Navi- gation System (IN- S)(EGI), Incorpora- tion of (ECP MDA- F/A-18-0521)	15 Dec 01	-
F/A-18 AFC 231 PT 3	-	Embedded Global Positioning System (GPS)/Inertial Navi- gation System (IN- S)(EGI), Incorpora- tion of (ECP MDA- F/A-18-0521)	15 Dec 01	-
F/A-18 AFC 253	-	U.S. Naval Reserves A+ Avionics Up- grade, Incorporation of (ECP MDA-F/A- 18-00583)	15 Oct 00	-
F/A-18 AFC 292	-	U.S. Marine Corps Reserves A+ Avion- ics Upgrade, Incor- poration of (ECP MDA-F/A-18-00583)	15 Oct 00	-

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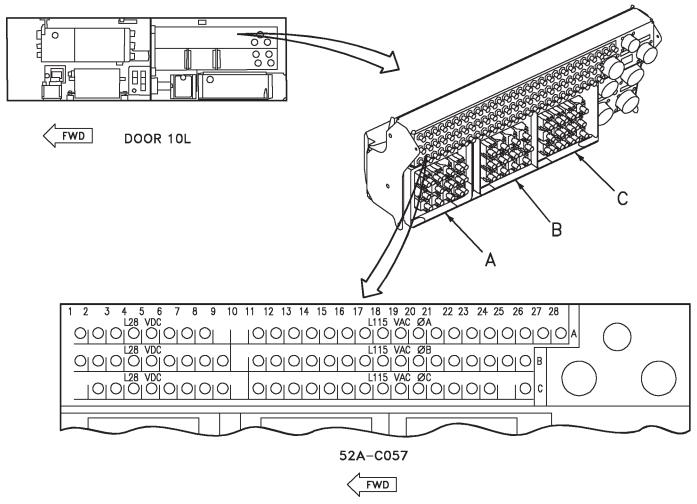


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 1)

Figure 1. Figure 1.

18AC-LMM-00-(13-1)53-CATI

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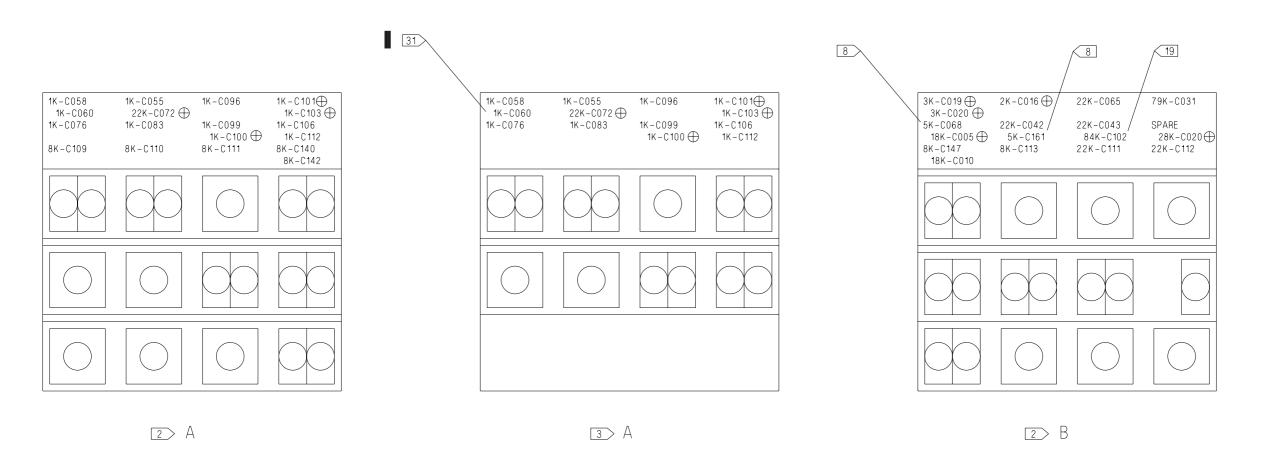


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 2)

Figure 1. Figure 1.

ADA542-13-2-070

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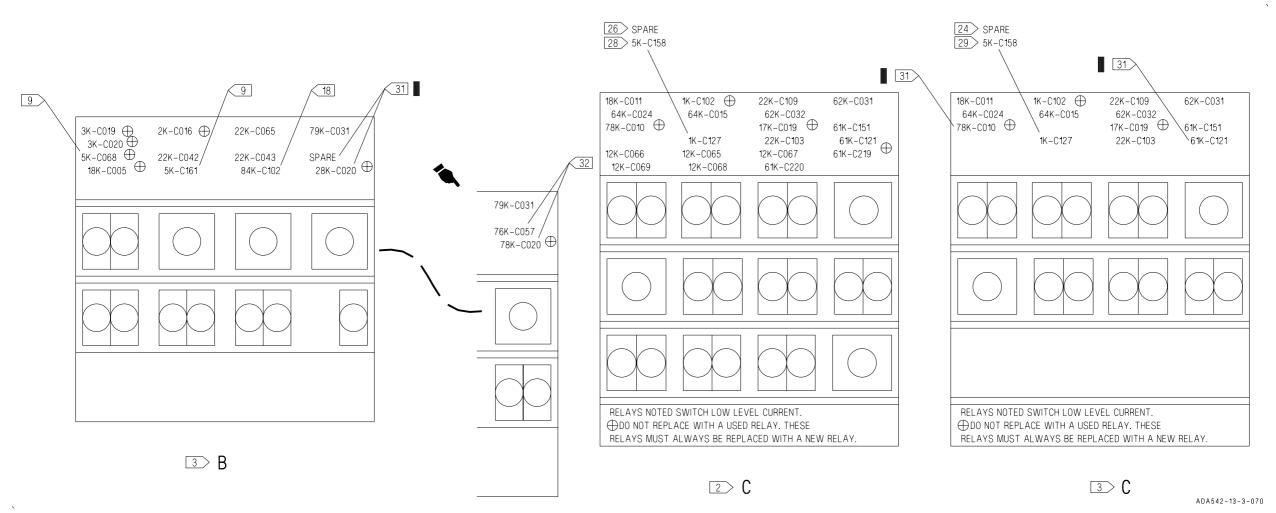


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 3)

Figure 1. Figure 1.

Change 10

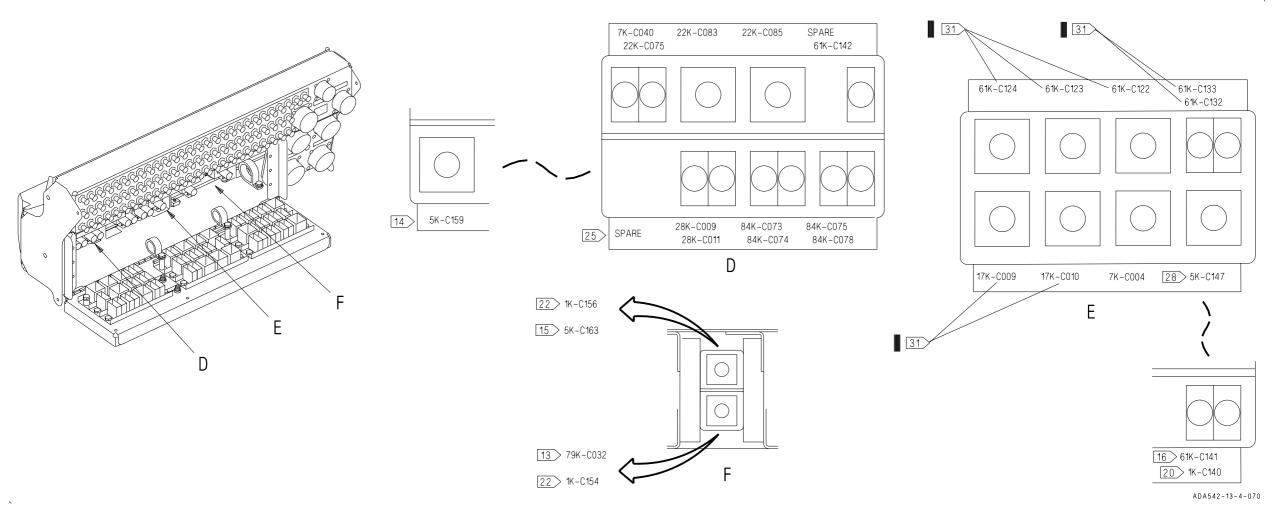


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 4)

Figure 1. Figure 1.

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52A-C057	NO. 7 CIR	CUIT BREAKER/RELAY PANEL ASSEI	MBLY
ZONE	REF DES	NOMENCLATURE	BUS
A1 A2 A3 A4 A5 A6 A7 A8	77CBC006 61CBC051 61CBC055 61CBC059 61CBC063 61CBC154 74CBC006 61CBC145	ARC 182 D-L ARM STA 1 ARM STA 2 ARM STA 3 ARM STA 4 MSTR ARM ILS 17 ARM STA 2 AERO 5	L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC
A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A24 A25 A24 A25 A26 4 A27 4 A28 B1 B2 B3 B4 B5 B6	64CBC011 61CBC056 61CBC060 61CBC064 74CBC003 22CBC080 22CBC077 22CBC062 17CBC002 83CBC006 28CBC003 3CBC038 68CBC006 7CBC005 7CBC029 61CBC052 62CBC001 62CBC001 62CBC002 5CBC153 7CBC002 13CBC001 25CBC001 25CBC001 25CBC001 25CBC001 25CBC001	ARM STA 2 28VDC  ALQ-126  ARM STA 2  ARM STA 3  ARM STA 4  ILS  LCS PUMP  LCS FAN  L CABIN CLG FAN  L WING FOLD EDU  MISSION COMP NO 1  L AOA PROBE HTR  L BLD DR  INS  POSITN LTS  LDG/T LT  ARM STA 1  ALR-67  ALR-67  FUEL PRESS  EXT LTS CONT  ANTI SKID  SEAT ADJ  EJCTR V  GND PWR CONT	L 115VAC Ø A L 128VDC Ø A L 28VDC
B7 B8 B9 B11	17CBC021 61CBC144 62CBC005 64CBC012	WINGFOLD CONT B 17 ARM STA 3 AERO 5 16 ARM STA 3 28 VDC ALR-67 IND CONT/FLTR ALQ-126	L 28VDC L 28VDC L 28VDC L 115VAC Ø B

52A-C057	NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	BUS		
B12	61CBC057	ARM STA 2	L 115VAC Ø F		
B13	61CBC061	ARM STA 3	L 115VAC Ø F		
B14	61CBC065	ARM STA 4	L 115VAC Ø I		
B15	74CBC004	ILS	L 115VAC 0		
B16	22CBC081	LCS PUMP	L 115VAC 0 1		
B17	22CBC078	LCS FAN	L 115VAC 0 1		
B18	22CBC063	L CABIN CLG FAN	L 115VAC 0 1		
B19	17CBC003	L WING FOLD EDU	L 115VAC 0		
B20	83CBC007	MISSION COMP NO 1	L 115VAC Ø		
B21	28CBC001	L PITOT PROBE HTR	L 115VAC Ø		
B22	3CBC039	L BLD DR	L 115VAC 0		
30 B23	68CBC007	INS	L 115VAC 0		
B24	7CBC012	FORMATN LTS	L 115VAC 0		
B25	15CBC001	OXYGEN GAGE	L 115VAC 0		
4 B26	62CBC003	ALR-67	L 115VAC 0		
C2	3CBC025	L BL DR/ENG CONT	L 28VDC		
C3	3CBC025 3CBC021	ENG IDLE/A-B LKOUT	L 28VDC		
23 C4	84CBC101	STICK STOP	L 28VDC		
32 C4 C4	61CBC149	ARM STA 4 28 VDC No 1	L 28VDC		
C5	22CBC106	LCS DR/PUMP CONT	L 28VDC		
C6					
	22CBC074	LCS DR ACTR	L 28VDC		
C7	64CBC016	ECM CLG	L 28VDC		
5 C8	5CBC148	VNT TNK SENSING	L 28VDC		
21 C8	5CBC162	FUEL TEST	L 28VDC		
11 C9	5CBC157	TANK 1 TRANSFER	L 28VDC		
12 C9	5CBC157	FUEL TRANSFER	L 28VDC		
C11	64CBC013	ALQ-126	L 115VAC 0		
C12	61CBC058	ARM STA 2	L 115VAC 0		
C13	61CBC062	ARM STA 3	L 115VAC 0		
C14	61CBC066	ARM STA 4	L 115VAC 0		
C15	74CBC005	ILS	L 115VAC 0		
C16	22CBC082	LCS PUMP	L 115VAC 0		
C17	22CBC079	LCS FAN	L 115VAC 0		
C18	22CBC064	L CABIN CLG FAN	L 115VAC Ø 0		
C19	17CBC004	L WING FOLD EDU	L 115VAC Ø		
C20	83CBC008	MISSION COMP NO 1	L 115VAC Ø 0		
C21	28CBC005	TOT TEMP SENS P HTR	L 115VAC 0 (		
C22	3CBC040	L BLD DR	L 115VAC 0 (		
30 C23	68CBC008	INS	L 115VAC Ø 0		
C24	7CBC035	STROBE LTS	L 115VAC Ø 0		

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 5)

Change 10

52A-C057	NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
4 C26	62CBC004	ALR-67	L 115VAC Ø C	

## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C055	GROUND POWER RELAY NO. 3
1K-C058	GROUND POWER RELAY NO. 6
31 1K-C060	GROUND POWER RELAY NO. 19
1K-C076	GROUND POWER RELAY NO. 8
1K-C083	GROUND POWER RELAY NO. 15
1K-C096	GROUND POWER RELAY NO. 21
1K-C099	APU GROUND POWER RELAY
1K-C100	GROUND POWER FAULT SENSING RELAY NO. 1
1K-C101	GROUND POWER FAULT SENSING RELAY NO. 2
1K-C102	GROUND POWER RELAY NO. 23
1K-C103	GROUND POWER RELAY NO. 24
1K-C106	GROUND POWER RELAY NO. 27
1K-C112	GROUND POWER RELAY NO. 18
4 1K-C127	GROUND POWER RELAY NO. 29
20 1K-C140	BATTERY SWITCH ON RELAY
22 1K-C154	BATTERY CONTROL RELAY
22 1K-C156	BATTERY CUTOFF LATCH RELAY
2K-C016	APU ON RELAY
3K-C019	LEFT AMAD CRANK/DECOUPLED RELAY
3K-C020	RIGHT AMAD CRANK/DECOUPLED RELAY
21 5K-C068	BINGO FUEL RELAY
I	I

## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
10 5K-C147	FUEL LOW LEVEL RELAY NO. 1
15 5K-C147	FUEL LOW LEVEL WARNING TIMER RELAY
7 5K-C158	TANK 1 TRANSFER CONTROL RELAY
14 5K-C159	TANK 1 TRANSFER TIME DELAY RELAY
21 5K-C161	NEGATIVE G RELAY
15 5K-C163	FUEL LOW LEVEL RELAY NO. 1
7K-C004	EXTERIOR LIGHTS MASTER SWITCH RELAY
7K-C040	TAXI LIGHT CONTROL RELAY
2 8K-C109	REAR ANNUNCIATOR DIMMING RELAY NO. 1
2 8K-C110	REAR ANNUNCIATOR DIMMING RELAY NO. 2
2 8K-C111	REAR ANNUNICATOR LIGHT TEST RELAY NO. 1
2 8K-C113	REAR ANNUNCIATOR LIGHT TEST RELAY NO. 2
2 8K-C140	REAR MASTER CAUTION HOLD RELAY
2 8K-C142	ANNUNCIATOR LIGHT TEST RELAY NO. 4
2 8K-C147	REAR ANNUNCIATOR DIMMING RELAY NO. 3
2 12K-C065	L BAR WARNING RELAY
2 12K-C066	L BAR ADVISORY RELAY
2 12K-C067	RMG DOWN LOCK RELAY
2 12K-C068	LMG DOWN LOCK RELAY
2 12K-C069	NG DOWN LOCK RELAY
31 17K-C009	LEFT WING SPREAD RELAY
31 17K-C010	LEFT WING FOLD RELAY
17K-C019	LEFT WING UNLOCKED RELAY
18K-C005	SPEED BRAKE LIGHT RELAY
2 18K-C010	REAR SPEED BRAKE LIGHT RELAY
18K-C011	SPEED BRAKE CONTROL RELAY
22K-C042	RIGHT ENGINE THROTTLE POSITION RELAY

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 6)

Change 10

52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

	,
REF DES	COMMON NAME
22K-C043	LEFT ENGINE THROTTLE POSITION RELAY
22K-C065	LEFT CABIN COOLING FAN CONTROL RELAY
22K-C072	UNDERCOOL WARNING RELAY
22K-C075	LCS RAM AIR DOOR CONTROL RELAY
22K-C083	LCS COOLING FAN CONTROL RELAY
22K-C085	LCS COOLING PUMP CONTROL RELAY
22K-C103	LCS RADAR ON RELAY
22K-C109	LCS RAM AIR DOOR OPEN RELAY
2 22K-C111	RIGHT REAR CABIN COOLING FAN CONTROL RELAY
2 22K-C112	LEFT REAR CABIN COOLING FAN CONTROL RELAY
28K-C009	LEFT PITOT ANTI-ICE RELAY
28K-C011	LEFT PROBE HEATER RELAY
31 28K-C020	PITOT HEATER OFF RELAY
31 61K-C121	STATION 1 POWER CONTROL RELAY
31 61K-C122	STATION 2 POWER CONTROL RELAY
31 61K-C123	STATION 3 POWER CONTROL RELAY
31 61K-C124	STATION 4 POWER CONTROL RELAY
31 61K-C132	STATION 2 ØC POWER CONTROL RELAY
31 61K-C133	STATION 3 ØC POWER CONTROL RELAY
16 61K-C141	STATION 3 28VDC POWER RELAY
17 61K-C142	LAU-118/A SOLENOID STATIONS 2 AND 3 RELAY
I	

52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
16 61K-C142	STATION 2 28VDC POWER RELAY
61K-C151	LEFT ENGINE DERICHMENT RELAY
2 61K-C219	AA MODE SELECT RELAY
2 61K-C220	AG MODE SELECT RELAY
4 62K-C031	DISPENSER CONTROL RELAY
4 62K-C032	A-KIT FILTER CONTROL RELAY
64K-C015	SPARROW REC/RPT RELAY
4 64K-C024	ECM COOLING RELAY
32 76K-C057	ZERO ALL RELAY
31 78K-C010	IFF MODE ENABLE RELAY
32 78K-C020	BFN PWR RELAY
27 79K-C031	HUD/DDI CAMERA AC POWER RELAY
13 79K-C032	VIDEO TAPE RECORDER DC POWER RELAY
84K-C073	PITCH TRIM MOTOR RELAY NO. 1
84K-C074	PITCH TRIM MOTOR RELAY NO. 2
84K-C075	PITCH TRIM MOTOR RELAY NO. 3
84K-C078	RATIO CHANGER RELAY
23 84K-C102	STICK STOP CONTROL RELAY

Change 15

LEGEND

⊕ LOW LEVEL RELAY SYMBOL

1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA

2 F/A-18B

3 F/A-18A

4 161702 AND UP

5 161353 THRU 161357 BEFORE F/A-18 AFC 53

6. SHEETS 1 THROUGH 4 SHOW THE LATEST AIRCRAFT CONFIGURATION. USE SHEETS 5 AND 6 FOR CIRCUIT BREAKER AND RELAY EFFECTIVITIES

7 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39 8 F/A-18B 161924 AND UP; ALSO 161354 THRU 161746 AFTER F/A-18

AFC 53

9 F/A-18A 161925 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18
AFC 53

10 161353 THRU 161761 BEFORE F/A-18 AFC 53

11 161520 THRU 161761; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 53

12 161924 AND UP

13 161353 THRU 161528 AFTER F/A-18 AFC 54 AND BEFORE F/A-18 AFC 48 AND 161702 THRU 161987 BEFORE F/A-18 AFC 48

14 161353 THRU 161519 AFTER F/A-18 AFC 39 AND BEFORE F/A-18 AFC 48 AND 161520 THRU 161987 BEFORE F/A-18 AFC 48

15 • 161924 THRU 161987 BEFORE F/A-18 AFC 48 AND 161353 THRU 161761 AFTER F/A-18 AFC 53 AND BEFORE F/A-18 AFC 48 16 161353, 161354, 161357, 161358, 161361, 161362, 161365, 161367, 161702 THRU 161987 ÁFTER É/A-18 ÁFC 74 ÁND F/A-18A 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292 17 161355, 161356, 161359, 161360, 161363, 161364, 161366, 161519 THRU 161528; ALSO 161353, 161354, 161357, 161358, 161361, 161362, 161365, 161367, 161702 THRÚ 161987 BEFOŘE F/A-18 AFC 74 18 F/A-18A 161353 THRU 161987 BEFORE F/A-18 AFC 86 19 F/A-18B 161354 THRU 161947 BEFORE F/A-18 AFC 86 20 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48 ▶ 161924 AND UP; ALSO 161353 THRU 161761 AFTER F/A-18 AFC 53 163119 AND UP; ALSO 161353 THRU 163118 AFTER F/A-18 AFC 90 ▶ 161353 THRU 161987 BEFORE F/A-18 AFC 86 24 F/A-18A 161353 THRU 161519 BEFORE F/A-18 AFC 39 25 162394 AND UP; ALSO 161353 THRU 161519 BEFORE F/A-18 AFC 39 AND 161520 THRU 161987 AFTER F/A-18 AFC 48 26 F/A-18B 161354 THRU 161360 BEFORE F/A-18 AFC 39 ▶ 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 54 ▶ 161354 THRU 161360 AFTER F/A-18 AFC 39 ▶ 161353 THRU 161924; ALSO 161925 THRU 163175 BEFORE F/A-18 AFC 231, F/A-18 AFC 📕 231 PT 2, OR F/A-18 AFC 231 PT 3 31 F/A-18A 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292

32 F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292

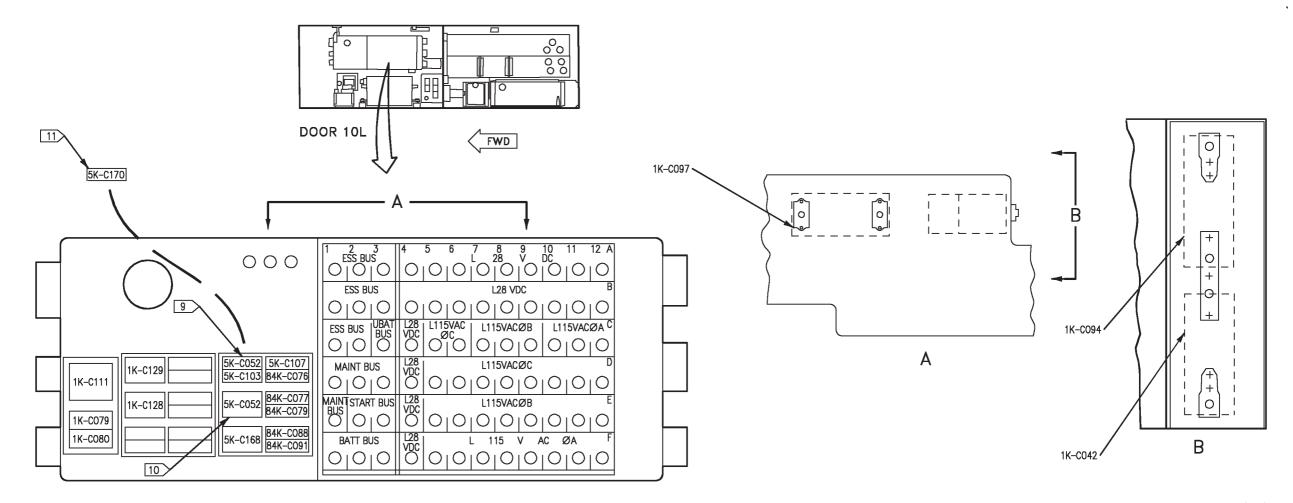


Figure 2. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 161353 THRU 161528 (Sheet 1)

18AC-LMM-00-(64-1)35-CAT

52A-C159	NO. 8 CIF	RCUIT BREAKER/RELAY PANEL	ASSEMBLY	52A-C159	NO. 8 CIF	RCUIT BREAKER/RELAY PANE	L ASSEMBLY
ZONE	REF DES	NOMENCLATURE	BUS	ZONE	REF DES	NOMENCLATURE	BUS
8 A- 6 A- 12 A- 13 A- A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 3 A10 4 A11 5 A11 A12 B1 B2 B3 B4 B5 B6 B7 B8 B9 7 B10 B11 B12 C1 C2 7 C3 8 C3 1 C4 1 C5 C6 1 C7	1CBC136 1CBC139 20CBC002 20CBC002 24CBC018 4CBC001 4CBC002 5CBC001 60CBC023 5CBC050 5CBC101 5CBC115 5CBC016 84CBC087 1CBC147 84CBC082 84CBC083 84CBC083 82CCBC035 76CBC027 78CBC009 84CBC084 60CBC026 5CBC002 1CBC088 60CBC025 60CBC006 1CBC038 1CBC073 61CBC092 10CBC016 84CBC081 1CBC039 1CBC039 1CBC039 1CBC039 1CBC039 1CBC039 1CBC039 8CBC105 8CBC105 8CBC105 8CBC105	E BATT PWR/VOLT IND GEN TIE CANOPY PWR CANOPY PWR BL AIR LEAK DET LOOP A FIRE DET LOOP EMER IFR RADAR NO. 3 FUEL LOW LVL WRN FUEL TK PRESS WING FUEL EXT FUEL TK CONT NOSE WHL STRG BUS TIE APC ASY BK FCC-B ASY BK FCC-L BL AIR CONT V INTER COMM IFF XMTR-REC RATIO CHANGER RADAR CONT IFR PROBE UTIL PWR REC RADAR NO. 2 RADAR NO. 1 L DC BUS SENSING EMER BATT CHG GUN DCDR HYD ISOL PITCH TRIM CHECK BATT RELAY SW UTIL BATT STATUS U BATT PWR/VOLT IND INT-LTS CONT-AFT INT-LTS CONT-AFT RADAR NO. 2 INT-LTS CONT-AFT	E BATT 24/28VDC U BATT/MAINT 24/28VDC MAINT 24/28VDC U BATT/MAINT 24/28VDC ESS 24/28VDC ESS 24/28VDC ESS 24/28VDC L 28VDC ESS 24/28VDC ESS 24/28VDC L 28VDC L 13VAC U BATT/MAINT 24/28VDC L 115VAC 0 C L 115VAC 0 C L 115VAC 0 C	C8 C9 C10 C11 C12 D1 D2 D3 1 D4 D6 D7 D8 D9 D10 D11 D12 14 E1 15 E1 E2 E3 E4 E6 E7 E8 E9 E10 E11 E12 F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11	78CBC004 60CBC021 8CBC106 61CBC091 60CBC020 2CBC007 85CBC004 5CBC023 25CBC003 60CBC005 61CBC050 5CBC003 1CBC087 1CBC029 80CBC012 80CBC002 20CBC002 20CBC001 3CBC012 20CBC001 3CBC012 20CBC001 60CBC04 61CBC048 1CBC086 1CBC088 80CBC011 80CBC09 84CBC09 84CBC089 84CBC090 61CBC243 60CBC003 61CBC243 60CBC003 61CBC048 1CBC075 1CBC085 1CBC087 80CBC010	IFF CMPTR RADAR NO. 2 INT-LTS CONT-AFT GUN DCDR RADAR NO. 2 APU PRIME MSDRS FUEL V POSITION SEAT ADJ AFT RADAR NO. 1 FU FCTN CONT IFR LT UTIL PWR REC XFMR RECT HSD MMD CANOPY PWR CANOPY PWR CANOPY PWR CANOPY CONT RADAR NO. 1 FU FCTN CONT LIQ LVL CONT LIQ LVL CONT UTIL PWR REC XFMR RECT HSD MMD INS FCS CH 1 FCS CH 2 TACTS TACTS RADAR NO. 1 FU FCTN CONT EMER BATT HTR UTIL PWR REC XFMR RECT	L 115VAC 0 B L 115VAC 0 A L 115VAC 0 A L 115VAC 0 A L 115VAC 0 A MAINT 24/28VDC MAINT 24/28VDC MAINT 24/28VDC L 28VDC L 115VAC 0 C L 115VAC 0 B L 115VAC 0 A

Figure 2. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 161353 THRU 161528 (Sheet 2) Figure 2.

Change 7

Page 16

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
F12	80CBC004	MMD	L 115VAC Ø A	

## 52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C042	UTILITY BATTERY CONTACTOR
1K-C079	FLIGHT CONTROL GROUND POWER RELAY NO. 11
1K-C080	FLIGHT CONTROL GROUND POWER RELAY NO. 12
7 1K-C094	MAINTENANCE BUS CONTACTOR
1K-C097	EMERGENCY BATTERY CONTACTOR
1K-C111	LEFT DC BUS POWERED RELAY
8 1K-C128	UTILITY BATTERY SENSING RELAY
8 1K-C129	BATTERY ANTI-CYCLE TIMER RELAY
5K-C052	FUEL LOW LEVEL RELAY NO. 2
5K-C103	20K FT RELAY
5K-C107	EXTERNAL TANK PRESS CONTROL RELAY
11 5K-C168	EXTERNAL TANK PRECHECK RELAY
11 5K-C170	FUEL LOW LEVEL RELAY NO. 3
84K-C076	FCC B ASYMMETRY BRAKE RELAY NO. 2

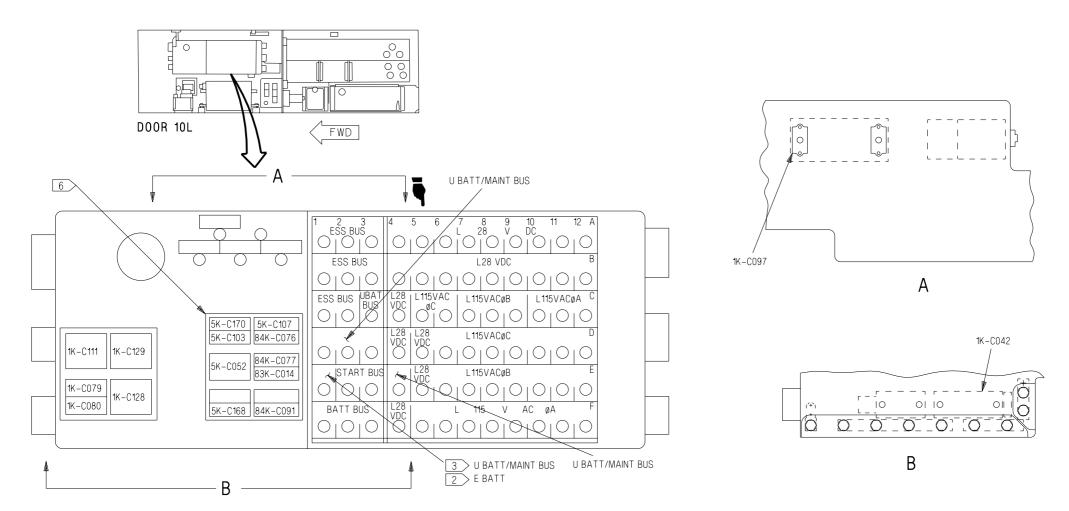
## 52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
84K-C077	FCC B ASYMMETRY BRAKE RELAY NO. 1
16 84K-C079	LEFT ENGINE APC RELAY
17 84K-C088	NOSEWHEEL STEERING RELAY NO. 1
84K-C091	NOSEWHEEL STEERING RELAY NO. 2

### LEGEND

1 F/A-18B
2 F/A-18A
3 161353 THRU 161359 BEFORE F/A-18 AFC 8
4 161353 THRU 161519 BEFORE F/A-18 AFC 27
5 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27
6 AFTER F/A-18 AFC 48
7 BEFORE F/A-18 AFC 49
8 AFTER F/A-18 AFC 49
9 161353 THRU 161519 BEFORE F/A-18 AFC 39
10 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 39
11 AFTER F/A-18 AFC 39
12 F/A-18B BEFORE F/A-18 AFC 49
13 F/A-18B AFTER F/A-18 AFC 49
14 F/A-18A BEFORE F/A-18 AFC 49
15 F/A-18A AFTER F/A-18 AFC 49
16 161353 THRU 161359
17 BEFORE F/A-18 AFC 41

Change 2



18AC-LMM-00\_76-1-61

Figure 3. No 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 161702 AND UP (Sheet 1)

Change 10

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY		52A-C159	NO. 8 CII	RCUIT BREAKER/RELAY PANE	LASSEMBLY	
ZONE	REF DES	NOMENCLATURE	BUS	ZONE	REF DES	NOMENCLATURE	BUS
5 A- 2 A- 3 A- A1 A2 A3 A4 A5 A6 A7 A8 A9 5 A10 A11 A12 B1 8 B2 B3 B4 B5 B6 B7 B8 B9 9 B10 B11 B11 B12 C1 C2 C3 C3 C4 Q C4 Q C5 9 C5 C6 C6 C7 T0 C8 C9	1CBC139 20CBC002 1CBC136 24CBC018 4CBC001 60CBC023 5CBC001 5CBC101 5CBC115 5CBC101 5CBC115 5CBC016 84CBC083 22CBC035 76CBC027 78CBC009 84CBC026 5CBC002 1CBC088 60CBC026 5CBC002 1CBC088 61CBC025 60CBC006 1CBC038 61CBC188 61CBC188 61CBC092 10CBC016 84CBC081 1CBC092 10CBC016 84CBC081 1CBC092 10CBC016 84CBC081 1CBC025 1CBC039 8CBC105 61CBC180 8CBC105 61CBC180 8CBC107 78CBC004 60CBC021	GEN TIE CANOPY PWR E BATT PWR/VOLT IND BL AIR LEAK DET LOOP A FIRE DET LOOP B EMER IFR RADAR NO. 3 FUEL LOW LVL WRN FUEL TK PRESS WING FUEL EXT FUEL TK CONT NOSE WHL STRG BUS TIE ASY BK FCC L BL AIR CONT V INTER COMM IFF XMTR-REC RATIO CHANGER RADAR CONT IFR PROBE UTIL PWR REC RADAR NO. 2 RADAR NO. 1 L DC BUS SENSING ARM STA 2 28 VDC 2 GUN DCDR HYD ISOL PITCH TRIM CHECK BATT RELAY SW U BATT PWR/VOLT IND INT-LTS CONT-AFT ARM STA 4 28 VDC 2 INT-LTS CONT-AFT BFN RADAR NO. 2 INT-LTS CONT-AFT BFN RADAR NO. 2 INT-LTS CONT-AFT IFF CMPTR RADAR NO. 2	U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC E BATT 24/28 VDC ESS 24/28VDC ESS 24/28VDC ESS 24/28VDC L 28VDC L 15VAC U BATT/MAINT 24/28VDC L 28VDC L 115VAC Ø C L 115VAC Ø C L 115VAC Ø B L 115VAC Ø B	2 C10 C11 C12 D1 D2 D3 D4 9 D4 7 D5 D6 D7 D8 D9 D10 D11 D12 2 E1 3 E1 E2 E3 E4 7 E5 E6 E7 E8 E9 E10 E11 E12 F1 F2 F3 F4 F5 F6 F7 F8 F9 F10	8CBC106 61CBC091 60CBC020 2CBC007 85CBC004 5CBC023 25CBC003 61CBC189 68CBC012 60CBC050 5CBC003 1CBC087 1CBC029 80CBC012 80CBC012 80CBC006 1CBC136 20CBC002 2CBC001 3CBC012 20CBC001 3CBC012 20CBC001 85CBC045 60CBC004 61CBC048 1CBC086 1CBC088 1CBC088 1CBC088 80CBC011 80CBC004 61CBC049 5CBC054 1CBC088 1CBC088 1CBC088 1CBC088 80CBC011 80CBC001 80CBC001 80CBC001 80CBC003 61CBC048 1CBC085 1CBC085 1CBC085	INT-LTS CONT-AFT GUN DCDR RADAR NO. 2 APU PRIME MSDRS FUEL V POSITION SEAT ADJ AFT ARM STA 3 28 VDC 2 EGI RADAR NO. 1 FU FCTN CONT IFR LT UTIL PWR REC XFMR RECT HSD MMD E BATT PWR/VOLT IND CANOPY PWR APU ENGINE START CANOPY CONT MEMORY UNIT RADAR NO. 1 FU FCTN CONT LIQ LVL CONT LIQ LVL CONT UTIL PWR REC XFMR RECT HSD MMD INS FCCA CH 1 FCCA CH 2 TACTS TACTS RADAR NO. 1 FU FCTN CONT EMER BATT HTR UTIL PWR REC XFMR RECT	L 115VAC Ø A L 115VAC Ø A L 115VAC Ø A L 115VAC Ø A U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC L 28VDC L 28VDC L 115VAC Ø C L 115VAC Ø B L 115VAC Ø A

Figure 3. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 161702 AND UP (Sheet 2) Figure 3.

Change 15

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY				
ZONE	REF DES	NOMENCLATURE	BUS		
F11 F12	80CBC010 80CBC004	HSD MMD	L 115VAC Ø A L 115VAC Ø A		

## 52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C042	UTILITY BATTERY CONTACTOR
1K-C079 1K-C080	FLIGHT CONTROL GROUND POWER RELAY NO. 11 FLIGHT CONTROL GROUND POWER RELAY NO. 12
1K-C097 1K-C111	EMERGENCY BATTERY CONTACTOR LEFT DC BUS POWERED RELAY
1K-C128 1K-C129	UTILITY BATTERY SENSING RELAY BATTERY ANTI-CYCLE TIMER RELAY
5K-C052 5K-C103	FUEL LOW LEVEL RELAY NO. 2 20K FT RELAY
5K-C107	EXTERNAL TANK PRESS CONTROL RELAY EXTERNAL TANK PRECHECK RELAY
5K-C168 6 5K-C170	FUEL LOW LEVEL RELAY NO. 3

### 52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

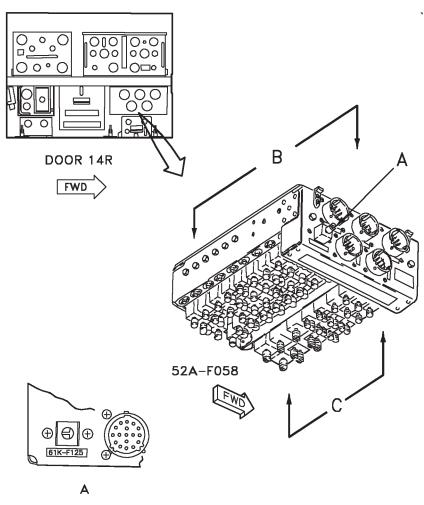
REF DES	COMMON NAME
83K-C014 84K-C076 84K-C077 84K-C091	MSDRS CUTOFF RELAY FCC B ASYMMETRY BRAKE RELAY NO. 2 FCC B ASYMMETRY BRAKE RELAY NO. 1 NOSEWHEEL STEERING RELAY NO. 2

#### **LEGEND**

|--|

- 2 F/A-18B
- 3 F/A-18A
- 4 161924 AND UP; ALSO 161702 THRU 161761 AFTER F/A-18 AFC 39
- 5 162394 AND UP; ALSO 161702 THRU 161987 AFTER F/A-18 AFC 48
- 6 161924 THRU 162477; ALSO 161702 THRU 161761 AFTER F/A-18 AFC 39
- 7 161925 THRU 163175 AFTER F/A-18 AFC 231, F/A-18 AFC 231 PT 2, OR F/A-18 AFC 231 PT 3
- 8 F/A-18A 161353 THRU 161987, F/A-18B; ALSO F/A-18A 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292
- 9 F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292 10 F/A-18A 161925 THRU 161987 AND F/A-18B 161932 THRU 163123 AFTER

F/A-18 AFC 231; ALSO F/A-18A 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292



18AC-LMM-00-(14-1)44-CATI

Figure 4. No. 2 Relay Panel Assembly - 52A-F058 (Sheet 1)

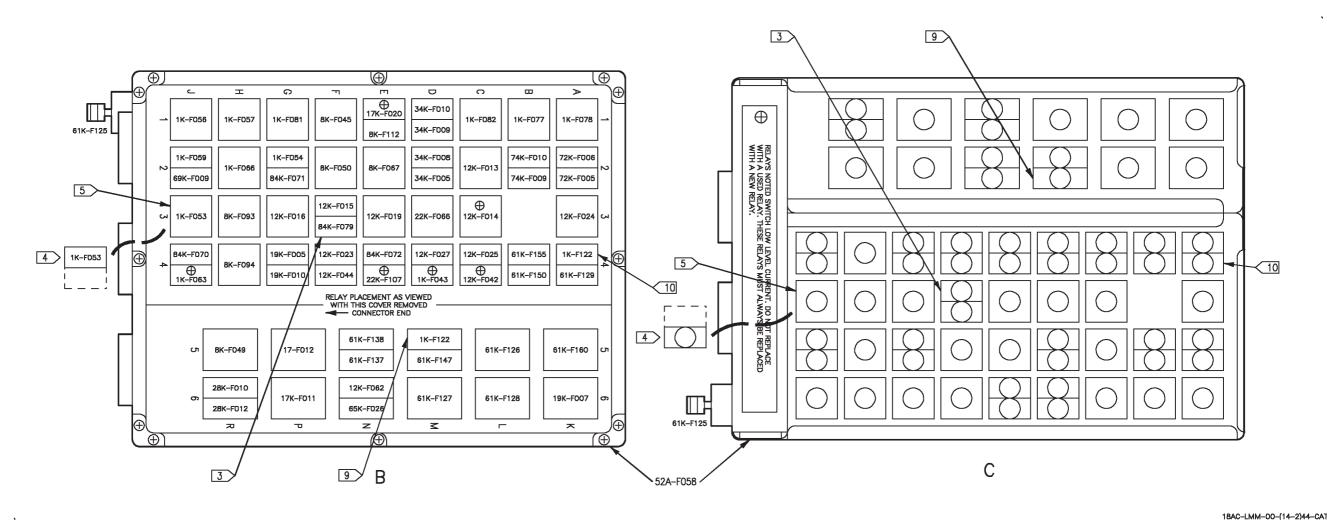


Figure 4. No. 2 Relay Panel Assembly - 52A-F058 (Sheet 2)

Figure 4.

Figure 4.

Change 10

52A-F058

### **NO. 2 RELAY PANEL ASSEMBLY**

REF DES	COMMON NAME
1K-F043	CHECK BATTERY SWITCH RELAY
1K-F053	GROUND POWER RELAY NO. 1
1K-F054	GROUND POWER RELAY NO. 2
1K-F056	GROUND POWER RELAY NO. 4
1K-F057	GROUND POWER RELAY NO. 5
1K-F059	GROUND POWER RELAY NO. 7
1K-F063	GROUND POWER RELAY NO. 16
1K-F066	GROUND POWER RELAY NO. 17
1K-F077	GROUND POWER RELAY NO. 9
1K-F078	GROUND POWER RELAY NO. 10
1K-F081	GROUND POWER RELAY NO. 13
1K-F082	GROUND POWER RELAY NO. 14
1K-F122	GROUND POWER RELAY NO. 28
8K-F045	ANNUNCIATOR LIGHT TEST RELAY NO. 1
8K-F049	ANNUNCIATOR DIMMING RELAY NO. 1
8K-F050	ANNUNCIATOR DIMMING RELAY NO. 2
8K-F067	ANNUNCIATOR LIGHT TEST RELAY NO. 2
8K-F093	ANNUNCIATOR DIMMING RELAY NO. 3
8K-F094	ANNUNCIATOR LIGHT TEST RELAY NO. 3
8K-F112	ANNUNCIATOR DIMMING RELAY NO. 4
12K-F013	NG WOW RELAY NO. 2
12K-F014	RMG WOW RELAY NO. 5
12K-F015	RMG WOW RELAY NO. 1
12K-F016	RMG WOW RELAY NO. 2
12K-F019	LMG WOW RELAY NO. 3
12K-F023	ALL GEARS DOWN AND LOCKED RELAY
12K-F024	ALL GEARS UP AND LOCKED RELAY

### 52A-F058

### NO. 2 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME	
12K-F025	LAUNCH BAR RETRACTED RELAY	
12K-F027	ALL GEARS UP RELAY	
12K-F042	RMG WOW RELAY NO. 6	
12K-F044	NG WOW RELAY	
12K-F062	RMG WOW RELAY NO. 7	
11 17K-F011	RIGHT WING SPREAD RELAY	
11 17K-F012	RIGHT WING FOLD RELAY	
17K-F020	RIGHT WING UNLOCKED RELAY	
19K-F005	HOOK DOWN RELAY	
19K-F007	ARG HOOK CONTROL VALVE RELAY	
19K-F010	HOOK WARNING LIGHT CONTROL RELAY	
22K-F066	RIGHT CABIN COOLING FAN CONTROL RELAY	
22K-F107	ESSENTIAL AVIONICS HOT CAUTION CONTROL RELAY 2	
28K-F010	RIGHT PITOT ANTI-ICE RELAY	
28K-F012	RIGHT PROBE HEATER RELAY	
34K-F005	APPROACH LIGHTS CONTROL RELAY	
34K-F008	AOA LOW RELAY	
34K-F009	AOA CENTER RELAY	
34K-F010	AOA HIGH RELAY	
61K-F125	STATION 5 POWER CONTROL RELAY	
11 61K-F126	STATION 6 POWER CONTROL RELAY	
11 61K-F127	STATION 7 POWER CONTROL RELAY	
11 61K-F128	STATION 8 POWER CONTROL RELAY	
11 61K-F129	STATION 9 POWER CONTROL RELAY	
11 61K-F137	STATION 7 Ø C POWER CONTROL RELAY	
11 61K-F138	STATION 8 Ø C POWER CONTROL RELAY	
7 61K-F147	LAU-118/A SOLENOID STATIONS 7 AND 8 RELAY	

Change 10

### 52A-F058

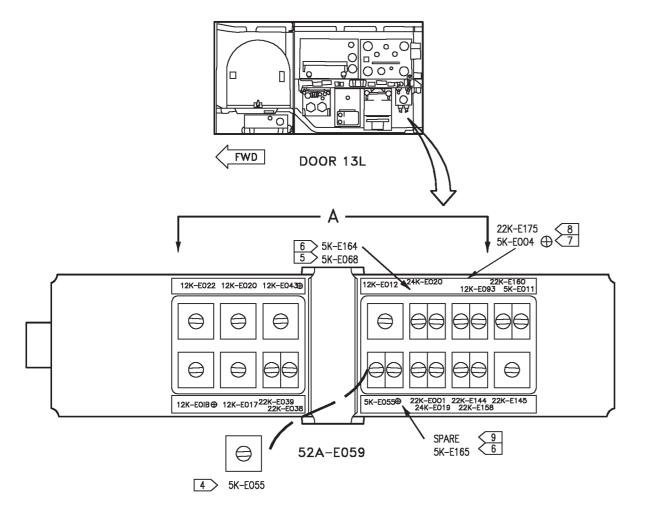
#### NO. 2 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
8 61K-F147	STATION 7 28VDC POWER RELAY
61K-F150	RIGHT ENGINE DERICHMENT RELAY
61K-F155	CLC ON RELAY
61K-F160	AMAC ENCODER/DECODER ON RELAY
65K-F026	ALE-39 SEQUENCE POWER RELAY
69K-F009	TACAN ON RELAY
72K-F005	BEACON ON RELAY
72K-F006	AUG RECEIVER ON RELAY
74K-F009	ILS CONTROL RELAY NO. 1
74K-F010	ILS CONTROL RELAY NO. 2
84K-F070	FCCA ASYMMETRY BRAKE RELAY NO. 1
84K-F071	FCCA ASYMMETRY BRAKE RELAY NO. 2
6 84K-F072	RIGHT ENGINE APC RELAY
3 84K-F072	ENGINE APC RELAY NO. 1
3 84K-F079	ENGINE APC RELAY NO. 2

#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA
- 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
  - 3 161360 AND UP
- 4 F/A-18A
- 5 F/A-18B
- 6 161353 THRU 161359
- 7 161355, 161356, 161359, 161360, 161363, 161364, 161366, 161519 THRU 161528; ALSO 161353, 161354, 161357, 161358, 161361, 161362, 161365, 161367, 161702 THRU 161987 BEFORE F/A-18 AFC 74
- 8 162394 AND UP; ALSO 161353, 161354, 161357, 161358, 161361, 161362, 161365, 161367, 161702 THRU 161987 AFTER F/A-18 AFC 74
- 9 161353 THRU 162477
- 10 162826 AND UP
- 11 F/A-18A 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR F/A-18 AFC 292

A1-F18AC-LMM-000 015 01
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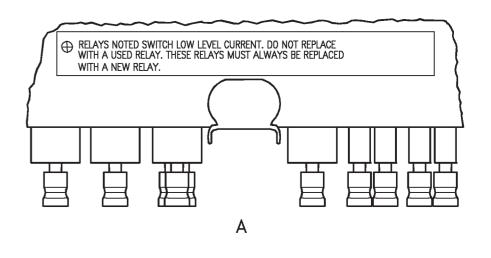


Figure 5. No. 3 Relay Panel Assembly - 52A-E059 (Sheet 1)

Figure 5.

18AC-LMM-00-(15-1)47-CAT

52A-E059	NO.	3 RFL	AY PANFI	ASSEMBLY
32/\ E333	110.	O IVE	/	/ NOOLINDLI

REF DES	COMMON NAME		
7 5K-E004	IFR SWITCH POSITION RELAY		
5K-E011	IFR LIGHT CONTROL RELAY		
5 5K-E055	FUEL LOW LEVEL BIT RELAY		
6 5K-E055	FUEL LOW LEVEL BIT RELAY		
	NO. 1		
5 5K-E068	BINGO FUEL RELAY		
6 5K-E164	FUEL LOW LEVEL BIT RELAY		
	NO. 2		
6 5K-E165	FUEL LOW LEVEL BIT RELAY		
	NO. 3		
12K-E012	RMG WOW RELAY NO. 3		
12K-E017	LMG WOW RELAY NO. 1		
12K-E018	LMG WOW RELAY NO. 2		
12K-E020	LMG WOW RELAY NO. 4		
12K-E022	LMG WOW RELAY NO. 6		
12K-E043	GEAR HANDLE CONTROL RELAY		
3 12K-E093	GEAR HANDLE CONTROL RELAY		
	NO. 2		
22K-E001	ECM VALVE CONTROL RELAY		
22K-E038	SECONDARY EJECTOR CONTROL		
	RELAY		
22K-E039	PRIMARY EJECTOR CONTROL		
	RELAY		
22K-E144	ECS OFF/RAM RELAY		
l	1		

#### 52A-E059 NO. 3 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
22K-E145	ECS AUTO/MANUAL RELAY NO. 1
22K-E158	ECS AUTO/MANUAL RELAY NO. 2
22K-E160	RAM/DUMP RELAY
8 22K-E175	DUMP/RAM DUMP RELAY
24K-E019	LEFT BLEED AIR OFF RELAY
24K-E020	RIGHT BLEED AIR OFF RELAY

#### **LEGEND**

#### ⊕ LOW LEVEL RELAY SYMBOL

- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA
- 2. DOOR LOCATIONS ARE SHOWN IN

A1-F18AC-LMM-010

3 F/A-18B

4 161353 THRU 161528 BEFORE F/A-18 AFC 53

5 161353 THRU 161761 BEFORE F/A-18 AFC 53

6 161924 AND UP; ALSO 161353 THRU 161761

AFTER F/A-18 AFC 53 7 161353 THRU 162909

8 163092 AND UP

9 161702 THRU 161761 BEFORE F/A-18 AFC 53

Figure 5. No. 3 Relay Panel Assembly - 52A-E059 (Sheet 2)

Figure 5.

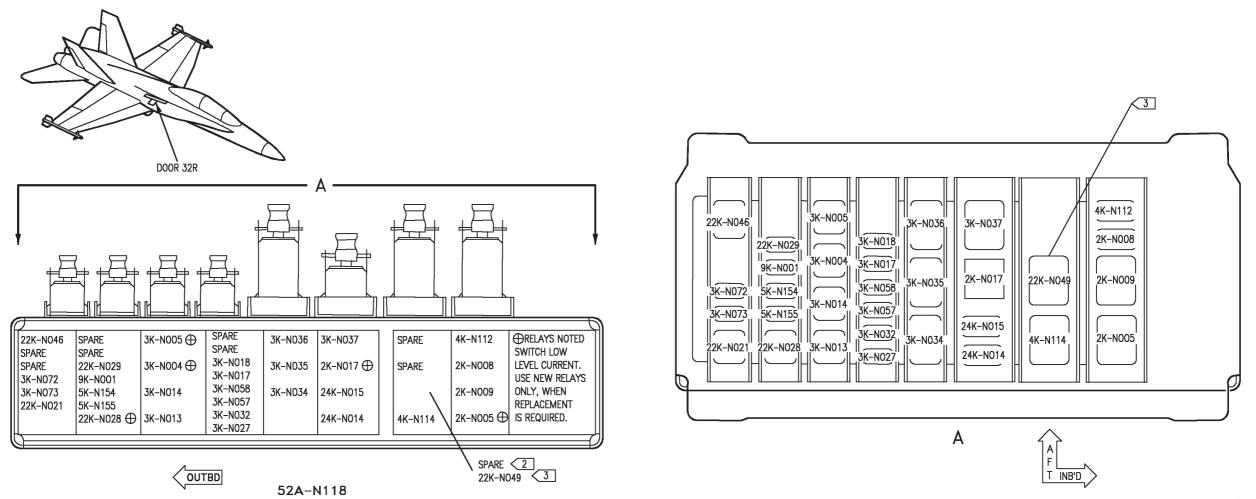


Figure 6. No. 4 Relay Panel Assembly - 52A-N118 (Sheet 1)

Figure 6.

18AC-LMM-00-(18-1)44-CAT

52A-N118	NO. 4 RE	LAY PANFI	. ASSEMBLY
2 <u>2</u> /\ 11±±0		/\\\\\\\\\\	·/VOCEIVIDEI

274-M118	NO. 4 RELAY PANEL ASSEMBLY	
REF DES	COMMON NAME	
2K-N005	APU COOLDOWN TIMER RELAY	
2K-N008	APU EMERGENCY SHUTDOWN RELAY	
2K-N009	APU SHUTDOWN TIMER RELAY	
2K-N017	VALVE POSITION STATUS DELAY	
	RELAY	
3K-N004	L CRANK RELAY NO. 1	
3K-N005	R CRANK RELAY NO. 1	
3K-N013	L CRANK RELAY NO. 2	
3K-N014	R CRANK RELAY NO. 2	
3K-N017	L GEN ON RELAY	
3K-N018	R GEN ON RELAY	
3K-N027	L INLET BLEED AIR DOOR CONTROL	
	RELAY	
3K-N032	R INLET BLEED AIR DOOR CONTROL	
	RELAY	
3K-N034	L INLET BLEED AIR DOOR RETRACT	
	CUTOFF RELAY	
3K-N035	L INLET BLEED AIR DOOR EXTEND	
017 31000	CUTOFF RELAY	
3K-N036	R INLET BLEED AIR DOOR EXTEND	
OIZ NIOOF	CUTOFF RELAY	
3K-N037	R INLET BLEED AIR DOOR RETRACT	
OIZ NIOTE	CUTOFF RELAY	
3K-N057	L N2 LOCKUP RELAY	
3K-N058	R N2 LOCKUP RELAY	
3K-N072 3K-N073	L AMAD OVERHEAT RELAY R AMAD OVERHEAT RELAY	
3 <b>K</b> -1NU/3	AMAD OVERHEAT RELAY	

### 52A-N118 NO. 4 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
4K-N112	APU FIRE EXTINGUISHER DISCHARGE
477 3744 4	RELAY
4K-N114	APU SPOOLDOWN AND AUTO DISCHARGE RELAY
5K-N154	LEFT ENGINE FUEL PRESSURE RELAY
5K-N155	RIGHT ENGINE FUEL PRESSURE RELAY
9K-N001	ENGINE ANTI-ICE VALVE CONTROL
	RELAY
22K-N021	ACS SHUTOFF RELAY
22K-N028	GND TEST RELAY
22K-N029	ISOLATION VALVE CONTROL RELAY
22K-N046	BLEED AIR OVER PRESSURE RELAY
24K-N014	L BLEED AIR LEAK SHUTOFF
	LATCHING RELAY
24K-N015	R BLEED AIR LEAK SHUTOFF
	LATCHING RELAY
3 22K-N049	PNEUMATIC DUMP TIMER RELAY

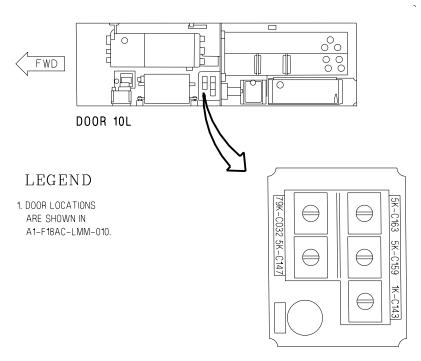
#### LEGEND

 $\oplus$  LOW LEVEL RELAY SYMBOL

- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN  $250~\mathrm{MA}$
- 2 BEFORE F/A-18 AFC 81
- 3 AFTER F/A-18 AFC 81

Figure 6. No. 4 Relay Panel Assembly - 52A-N118 (Sheet 2)

Figure 6.



52A-C161	NO. 9 RELAY PANEL ASSEMBLY
REF DES	NOMENCLATURE
1K-C143 5K-C147 ■ 5K-C159 5K-C163 79K-C032	GENERATOR AUTO RESET TIME DELAY RELAY FUEL LOW LEVEL WARNING TIMER RELAY TANK 1 TRANSFER TIME DELAY RELAY FUEL LOW LEVEL RELAY NO. 1 VIDEO RECORDER DC POWER RELAY

18 A C - L M M - 00 \_ 93 - 1 - 59

Figure 7. No. 9 Relay Panel Assembly - 52A-C161 - 162394 AND UP; ALSO 161353 THRU 161987 AFTER F18 AFC 48

Change 10

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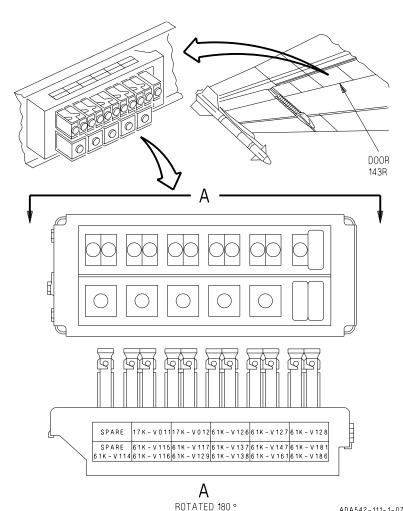


Figure 8. No. 10 Relay Panel Assembly - 52A-U044 - F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292 (Sheet 1)

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52A-V044 NO. 10 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
17K-V011	RIGHT WING SPREAD RELAY
17K-V012	RIGHT WING FOLD RELAY
61K-V114	STATION 6 28VDC NO. 1 POWER RELAY
61K-V115	STATION 6 28VDC NO. 2 POWER RELAY
61K-V116	STATION 7 28VDC NO. 2 POWER RELAY
61K-V117	STATION 8 28VDC NO. 2 POWER RELAY
61K-V126	STATION 6 POWER CONTROL RELAY
61K-V127	STATION 7 POWER CONTROL RELAY
61K-V128	STATION 8 POWER CONTROL RELAY
61K-V129	STATION 9 POWER CONTROL RELAY
61K-V137	STATION 7 ØC POWER CONTROL RELAY
61K-V138	STATION 8 ØC POWER CONTROL RELAY
61K-V147	STATION 7 28VDC NO. 1 POWER RELAY
61K-V161	STATION 8 28VDC NO. 1 POWER RELAY
61K-V181	STATION 5 28VDC NO. 1 POWER RELAY
61K-V186	STATION 5 28VDC NO. 2 POWER RELAY

Figure 8. No. 10 Relay Panel Assembly - 52A-U044 - F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292 (Sheet 2)

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DOOR 143L 17K-U009 17K-U010 61K-U122 61K-U123 61K-U124 SPARE 61K-U107 61K-U109 61K-U121 61K-U133 61K-U142 61K-U108 61K-U113 61K-U132 61K-U141 SPARE SPARE A

Figure 9. No. 11 Relay Panel Assembly - 52A-U045 - F/A-18A 162394 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292 (Sheet 1)

18AC-LMM-00-(112-1)44-CATI

Figure 9.

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52A-U045 NO. 11 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
17K-U009 17K-U010	LEFT WING SPREAD RELAY LEFT WING FOLD RELAY STATION 4 28VDC NO. 1 POWER RELAY
61K-U107 61K-U108 61K-U109	STATION 4 28VDC NO. 2 POWER RELAY STATION 2 28VDC NO. 2 POWER RELAY
61K-U113	STATION 3 28VDC NO. 2 POWER RELAY
61K-U121	STATION 1 POWER CONTROL RELAY
61K-U122	STATION 2 POWER CONTROL RELAY
61K-U123	STATION 3 POWER CONTROL RELAY
61K-U124	STATION 4 POWER CONTROL RELAY
61K-U132	STATION 2 ØC POWER CONTROL RELAY
61K-U133	STATION 3 ØC POWER CONTROL RELAY
61K-U141	STATION 3 28VDC NO. 1 POWER RELAY
61K-U142	STATION 2 28VDC NO. 1 POWER RELAY

Figure 9. No. 11 Relay Panel Assembly - 52A-U045 - F/A-18A 162394 THRU 162175 AFTER F/A-18 AFC 253 OR F/A AFC 292 (Sheet 2)

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Page 1

#### **ORGANIZATIONAL MAINTENANCE**

LINE MAINTENANCE PROCEDURES

**CIRCUIT BREAKER/RELAY PANELS** 

EFFECTIVITY: F/A-18C AND F/A-18D

#### Reference Material

#### None

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F/A-18D 164649 AND UP RECCE INSTALLED,	
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### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 236	-	AN/APX-111 (V) Combined Interrogator/ Transponder (CIT) Identification Friend or Foe (IFF) Sys- tem, Retrofit of (WUC 653D0) (ECP MDA-F/A-18- 00520R1)	1 May 00	-
F/A-18 AFC 258	-	Crash Survivable Flight Incident Recorder (CSFIRS) Installation of (ECP MDA-F/A-18-00573)	1 May 00	-
F/A-18 AFC 269	-	Digital Communications System (DCS), Incorporation of (ECP MDA-F/A-18-00576)	15 Jul 01	-

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## **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 270	-	Multifunctional Information Distribution System (MIDS) Low Volume Terminal (LVT), Incorporation of (ECP MDA-F/A-18-00577)	15 Jul 01	-

Change 2

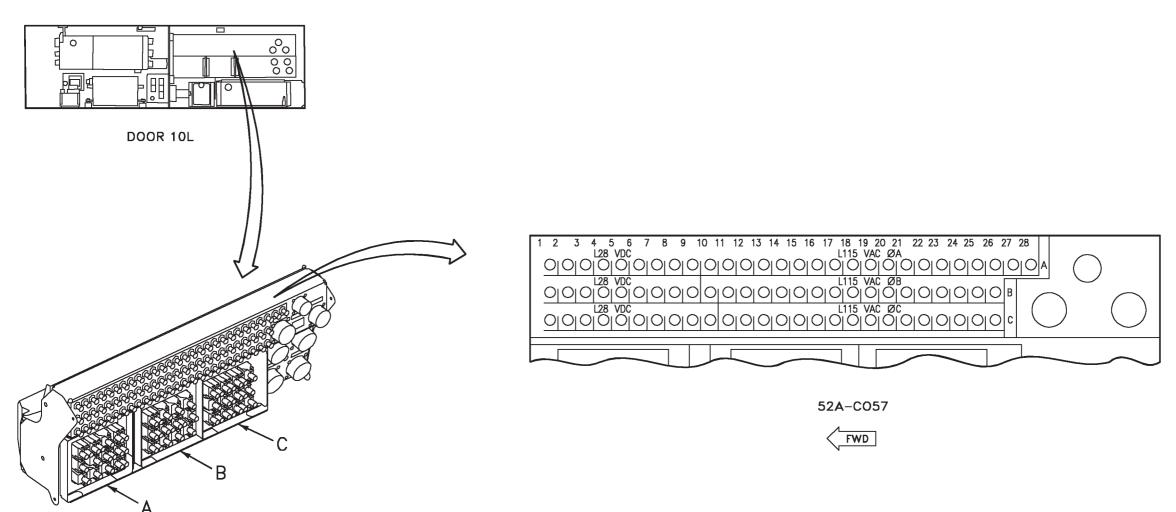
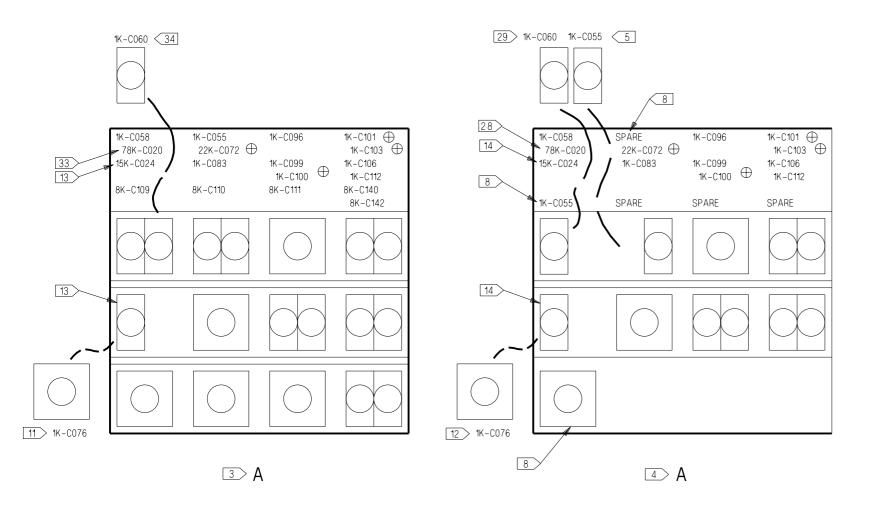


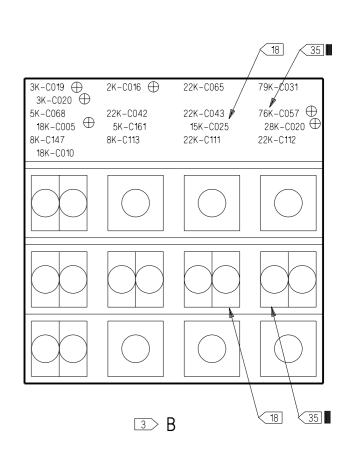
Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 1)

Figure 1. Figure 1.

18AC-LMM-00-(100-1)53-CATI

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ADA542-100-2-073

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 2)

Figure 1. Figure 1.

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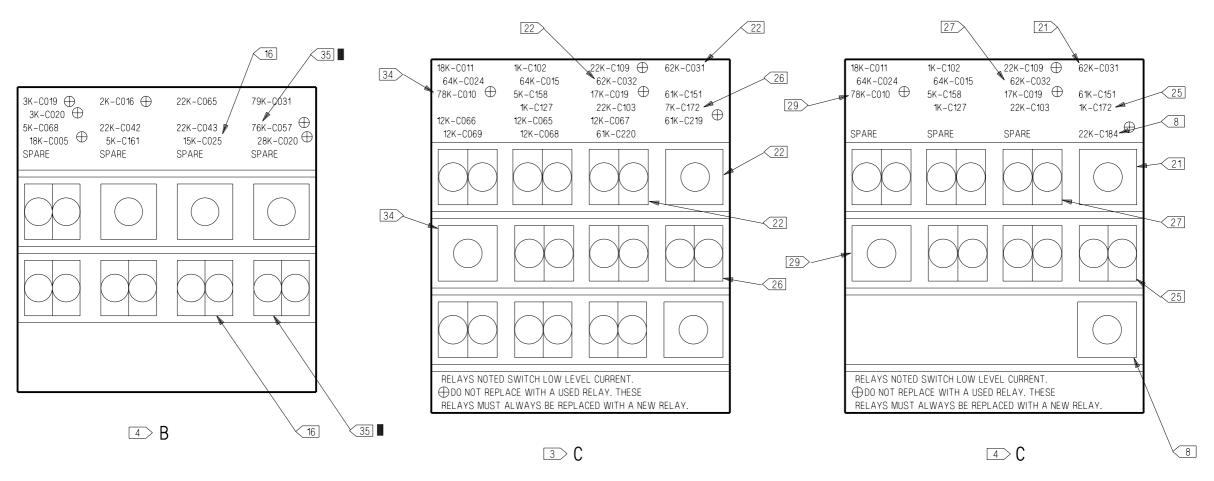


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 3)

Figure 1. Figure 1.

ADA542-100-3-073

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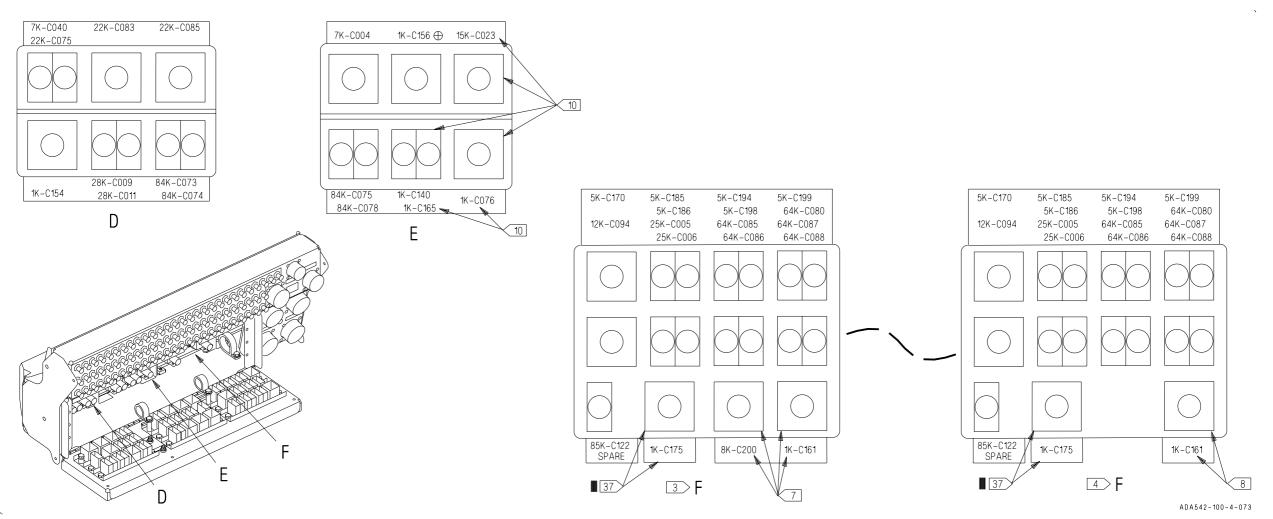


Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 4)

Figure 1. Figure 1.

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52A-C057	NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
A1 A2 A3 A4 A5 A6 A7 A8 A9 5 A10 6 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 36 A23 37 A23 A24 A25 A26 A27 A28 15 B1 B2 B3 B4 B5 B6 B7 B8	77CBC006 61CBC051 61CBC055 61CBC059 61CBC063 61CBC154 74CBC006 61CBC145 5CBC193 61CBC179 80CBC027 64CBC011 61CBC066 61CBC060 61CBC060 61CBC062 17CBC002 83CBC006 28CBC003 3CBC080 22CBC0077 22CBC062 17CBC002 83CBC006 28CBC001 62CBC001 62CBC002 83CBC006 69CBC010 7CBC002 83CBC006 69CBC010 7CBC002 81CBC002 81CBC006 69CBC010 7CBC002 81CBC001 62CBC002 81CBC001 62CBC001 62CBC001 62CBC001 62CBC001 62CBC001 62CBC001 62CBC001 62CBC001	ARC 182 D-L ARM STA 1 ARM STA 2 ARM STA 3 ARM STA 4 MSTR ARM ILS ARM STA 2 28VDC XMTV VALVE ARM STA 4 DIG MAP SET ALQ-126/165 ARM STA 2 ARM STA 3 ARM STA 4 ILS LCS PUMP LCS FAN L CABIN CLG FAN L WING FOLD EDU MISSION COMP NO 1 L AOA PROBE HTR L BLD DR INS MIDS POSITN LTS LDG/T LT ARM STA 1 ALR-67 ADP POWER EXT LTS CONT ANTI SKID SEAT ADJ EJCTR V GND PWR CONT WINGFOLD CONT B ARM STA 3 28 VDC	L 28VDC L 115VAC Ø A L 128VDC L 28VDC

52A-C057	NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY		
ZONE	REF DES	NOMENCLATURE	BUS
23 B9 24 B9 6 B10 B11 B12 B13 B14 B15 B16 B17 B18 B19 B20 B21 B22 36 B23 37 B23 B24 9 B25 10 B25 C1 C2 C3 C4 C5 C6 C7 T7 C8 6 C8 C9 C10 C11 C12 C13 C14 C15 C16 C17	62CBC005 62CBC005 80CBC028 64CBC012 61CBC057 61CBC061 61CBC065 74CBC004 22CBC081 22CBC078 22CBC063 17CBC003 83CBC007 28CBC001 3CBC039 68CBC007 69CBC011 7CBC012 15CBC001 15CBC001 15CBC001 62CBC003 5CBC214 3CBC025 3CBC214 3CBC025 3CBC021 5CBC115 22CBC106 22CBC074 64CBC089 61CBC179 5CBC176 64CBC089 61CBC179 5CBC176 64CBC013 61CBC066 74CBC0058 61CBC066 74CBC005 22CBC079	ALR-67 IND CONT/FLTR ALR-67 IND CONT DIG MAP SET ALQ-126/165 ARM STA 2 ARM STA 3 ARM STA 4 ILS LCS PUMP LCS FAN L CABIN CLG FAN L WING FOLD EDU MISSION COMP NO 1 L PITOT PROBE HTR L BLD DR INS MIDS FORMATN LTS OXYGEN GAGE OBOGS CONC ALR-67 LEVEL CONT V L BL DR/ENG CONT ENG IDLE/A-B LKOUT WING FUEL LCS DR/PUMP CONT LCS DR ACTR ECM CLG ALQ-165 ARM STA 4 FUEL TRANSFER FUEL GND TEST ALQ-126/165 ARM STA 2 ARM STA 3 ARM STA 4 ILS LCS PUMP LCS FAN	L 28VDC L 28VDC L 115VAC 0 B L 115VAC 0 C L 28VDC L 115VAC 0 C C C C C C C C C C C C C C C C C C

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 5)

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52A-C057	NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
C18 C19 C20 C21 C22 36 C23 37 C23 C24 6 C25 C26	22CBC064 17CBC004 83CBC008 28CBC005 3CBC040 68CBC008 69CBC012 7CBC035 80CBC029 62CBC004	L CABIN CLG FAN L WING FOLD EDU MISSION COMP NO 1 TOT TEMP SENS P HTR L BLD DR INS MIDS STROBE LTS DIG MAP SET ALR-67	L 115VAC 0 C L 115VAC 0 C	

## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C055	GROUND POWER RELAY NO. 3
1K-C058	GROUND POWER RELAY NO. 6
31 1K-C060	GROUND POWER RELAY NO. 19
1K-C076	GROUND POWER RELAY NO. 8
1K-C083	GROUND POWER RELAY NO. 15
1K-C096	GROUND POWER RELAY NO. 21
1K-C099	APU GROUND POWER RELAY
1K-C100	GROUND POWER FAULT SENSING RELAY NO. 1
1K-C101	GROUND POWER FAULT SENSING RELAY NO. 2
1K-C102	GROUND POWER RELAY NO. 23
1K-C103	GROUND POWER RELAY NO. 24
1K-C106	GROUND POWER RELAY NO. 27
1K-C112	GROUND POWER RELAY NO. 18
1K-C127	GROUND POWER RELAY NO. 29
1K-C140	BATTERY SWITCH ON RELAY
I	

## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C154	BATTERY CONTROL RELAY
1K-C156	BATTERY CUTOFF LATCH RELAY
6 1K-C161	GROUND POWER RELAY NO. 31
10 1K-C165	GROUND POWER RELAY NO. 34
24 1K-C172	BATTERY CONTROL RELAY NO. 2
37 1K-C175	GROUND POWER RELAY NO. 38
2K-C016	APU ON RELAY
3K-C019	LEFT AMAD CRANK/DECOUPLED RELAY
3K-C020	RIGHT AMAD CRANK/DECOUPLED RELAY
5K-C068	FUEL DUMP CONTROL RELAY
5K-C158	TANK 1 TRANSFER CONTROL RELAY
5K-C161	TANK 4 TRANSFER CONTROL RELAY
5K-C170	FUEL LOW LEVEL RELAY NO. 3
5K-C185	TANK 4 LCV PILOT LINE SHUTOFF VALVE CONTROL RELAY
5K-C186	TANK 1 INTERCONNECT VALVE CONTROL RELAY
5K-C194	CROSSMOTIVE VALVE CONTROL RELAY
5K-C198	RIGHT WING MOTIVE FLOW CONTROL RELAY
5K-C199	LEFT WING MOTIVE FLOW CONTROL RELAY
7K-C004	EXTERIOR LIGHTS MASTER SWITCH RELAY
7K-C040	TAXI LIGHT CONTROL RELAY
3 8K-C109	REAR ANNUNCIATOR DIMMING RELAY NO. 1
3 8K-C110	REAR ANNUNCIATOR DIMMING RELAY NO. 2
3 8K-C111	REAR ANNUNCIATOR LIGHT TEST RELAY NO. 1
3 8K-C113	REAR ANNUNCIATOR LIGHT TEST RELAY NO. 2
3 8K-C140	REAR MASTER CAUTION HOLD RELAY
3 8K-C142	ANNUNCIATOR LIGHT TEST RELAY NO. 4
3 8K-C147	REAR ANNUNCIATOR DIMMING RELAY NO. 3

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 6)

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## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME		
7 8K-C200	REAR ANNUNCIATOR LIGHT TEST RELAY NO. 3		
3 12K-C065	L BAR WARNING RELAY		
3 12K-C066	L BAR ADVISORY RELAY		
3 12K-C067	RMG DOWNLOCK RELAY		
3 12K-C068	LMG DOWNLOCK RELAY		
3 12K-C069	NG DOWNLOCK RELAY		
12K-C094	LMG WOW RELAY NO. 7		
10 15K-C023	AC POWER PRESENT RELAY		
10 15K-C024	HPWS RELAY		
19 15K-C025	HPWS PRESSURE RELAY		
17K-C019	LEFT WING UNLOCK RELAY		
18K-C005	SPEED BRAKE LIGHT RELAY		
3 18K-C010	REAR SPEED BRAKE LIGHT RELAY		
18K-C011	SPEED BRAKE CONTROL RELAY		
22K-C042	RIGHT ENGINE THROTTLE POSITION RELAY		
22K-C043	LEFT ENGINE THROTTLE POSITION RELAY		
22K-C065	LEFT CABIN COOLING FAN CONTROL RELAY		
22K-C072	UNDERCOOL WARNING RELAY		
22K-C075	LCS RAM AIR DOOR CONTROL RELAY		
22K-C083	LCS COOLING FAN CONTROL RELAY		
22K-C085	LCS COOLING PUMP CONTROL RELAY		
22K-C103	LCS RADAR ON RELAY		
22K-C109	LCS RAM AIR DOOR OPEN RELAY		
3 22K-C111	RIGHT REAR CABIN COOLING FAN CONTROL RELAY		
3 22K-C112	LEFT REAR CABIN COOLING FAN CONTROL RELAY		
8 22K-C184	UPPER EQUIPMENT COOLING FAN CONTROL RELAY		
25K-C005	SEAT ARM RELAY NO. 1		
I			

## 52A-C057 NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
25K-C006	SEAT ARM RELAY NO. 2
28K-C009	LEFT PITOT ANTI-ICE RELAY
28K-C011	LEFT PROBE HEATER RELAY
28K-C020	PITOT HEATER OFF RELAY
61K-C151	LEFT ENGINE DERICHMENT RELAY
3 61K-C219	AA MODE SELECT RELAY
3 61K-C220	AG MODE SELECT RELAY
20 62K-C031	DISPENSER CONTROL RELAY
23 •62K-C032	A-KIT FILTER CONTROL RELAY
64K-C015	ASPJ BIT ENABLE RELAY
64K-C024	ECM COOLING RELAY
64K-C080	ASPJ GROUND COOLING RELAY
64K-C085	XMIT INHIBIT RELAY
64K-C086	ALQ-165 HOT OVERRIDE RELAY
64K-C087	RECEIVE FILTER OUT RELAY
64K-C088	XMIT FILTER OUT RELAY 78K-C010
35 76K-C057	ZERO ALL RELAY
31 78K-C010	IFF MODE ENABLE RELAY
32 78K-C020	BFN POWER CONTROL RELAY
79K-C031	HUD/DDI CAMERA AC POWER RELAY
84K-C073	PITCH TRIM MOTOR RELAY NO. 1
84K-C074	PITCH TRIM MOTOR RELAY NO. 2
84K-C075	PITCH TRIM MOTOR RELAY NO. 3
84K-C078	RATIO CHANGER RELAY
85K-C122	SIGNAL DATA COMPUTER RESET RELAY

Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly - 52A-C057 (Sheet 7)

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#### LEGEND

#### ⊕ LOW LEVEL RELAY SYMBOL

25 F/A-18C 165207 AND UP 26 F/A-18D 165409 AND UP

- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010 3 F/A-18D 4 F/A-18C 5 163427 THRU 163782 **→** 163985 AND UP ▶ F/A-18D 163986 AND UP 8 F/A-18C 163985 AND UP 9 163427 THRU 164068 10 164196 AND UP 11 F/A-18D 163434 THRU 164068 12 F/A-18C 163427 THRU 164067 13 F/A-18D 164196 AND UP 14 F/A-18C 164197 AND UP 15 F/A-18D 164279 AND UP 16 F/A-18C 164627 AND UP 17 163699 THRU 163782 18 F/A-18D 164649 AND UP → 164627 AND UP 20 163427 THRU 164980 F/A-18C 163427 THRU 164980 22 F/A-18D 163434 THRU 164967 23 F/A-18C 163427 THRU 165206: F/A-18D 163434 THRU 164967 24 165207 AND UP
  - Figure 1. No. 7 Circuit Breaker/Relay Panel Assembly 52A-C057 (Sheet 8)

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27	F/A-18C 163427 THRU 165206
28	F/A-18C 165222 AND UP; ALSO F/A-18C 163985 THRU
	165221 AFTER F/A-18 AFC 236
29	F/A-18C 163427 THRU 163782; ALSO F/A-18C 163985 THRU
	165221 BEFORE F/A-18 AFC 236
30	DELETED
31	163427 THRU 163782; ALSO 163985 THRU 165221 BEFORE
	F/A-18 AFC 236
32	▶ 165222 AND UP; ALSO 163985 THRU 165221 AFTER F/A-18
	AFC 236
33	F/A-18D 165409 AND UP; ALSO F/A-18D 163986 THRU
	164967 AFTER F/A-18 AFC 236
34	F/A-18D 163434 THRU 163778; ALSO F/A-18D 163986 THRU
	164967 BEFORE F/A-18 AFC 236
35	AFTER F/A-18 AFC 269
36	BEFORE F/A-18 AFC 270
37	▶ AFTER F/A-18 AFC 270

Change 2

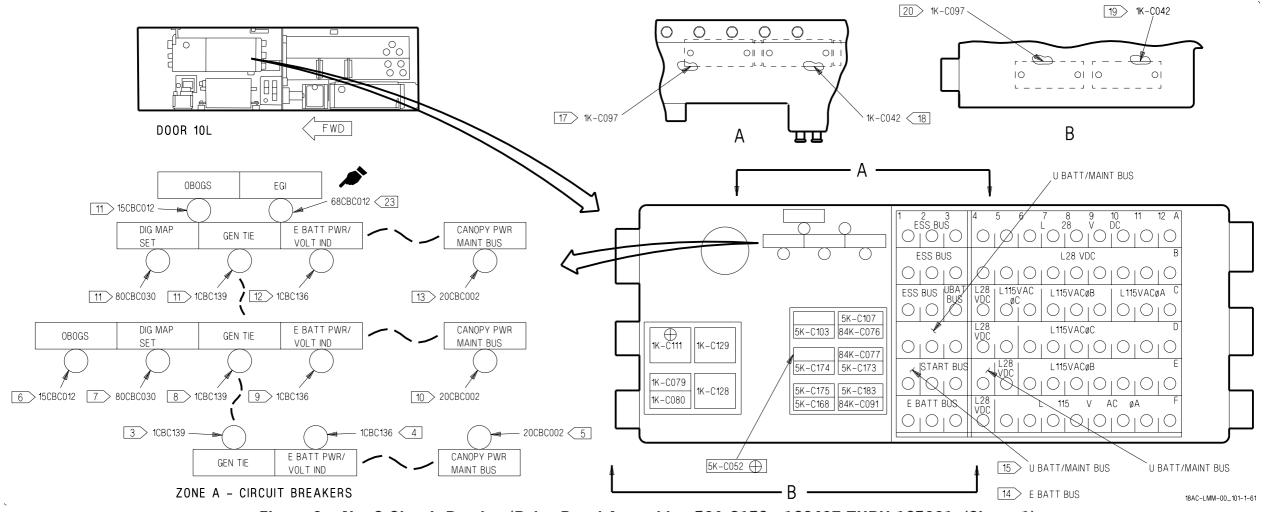


Figure 2. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 163427 THRU 165221 (Sheet 1)

Figure 2.

Change 7

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
21 A-	15CBC012 68CBC012 80CBC030 1CBC139 20CBC002 1CBC136 24CBC018 4CBC002 5CBC001 60CBC023 5CBC050 5CBC101 85CBC045 5CBC016 84CBC087 1CBC147 84CBC083 22CBC035 76CBC027 78CBC009 84CBC027 78CBC009 84CBC084 60CBC026 5CBC002 1CBC088 60CBC025 60CBC006 1CBC038 61CBC188 61CBC092 10CBC016 84CBC081 1CBC081 1CBC081 1CBC081 61CBC081 1CBC085 61CBC081 1CBC086 84CBC081 1CBC086 8CBC105 61CBC180 8CBC108 8CBC108	OBOGS EGI DIG MAP SET GEN TIE CANOPY PWR MAINT BUS E BATT PWR/VOLT IND BL AIR LEAK DET LOOP A FIRE DET LOOP B EMER IFR RADAR NO. 3 FUEL LOW LVL WRN FUEL TK PRESS MEMORY UNIT EXT FUEL TK CONT NOSE WHL STRG BUS TIE ASY BK FCC L BL AIR CONT V INTER COMM IFF XMTR-REC RATIO CHANGER RADAR CONT IFR PROBE UTIL PWR REC RADAR NO. 1 L DC BUS SENSING ARM STA 2 28 VDC 2 GUN DCDR HYD ISOL PITCH TRIM CHECK BATT RELAY SW U BATT PWR/VOLT IND INT-LTS CONT-AFT ARM STA 4 28 VDC 2 INT-LTS CONT-AFT UPR EQPT CLG FAN BFN	L 28VDC L 28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC E BATT 24/28 VDC ESS 24/28VDC ESS 24/28VDC L 28VDC	

52A-C159	NO. 8 CI	RCUIT BREAKER/RELAY PANEL	ASSEMBLY
ZONE	REF DES	NOMENCLATURE	BUS
26	60CBC022 8CBC108 22CBC183 8CBC107 22CBC182 60CBC022 78CBC004 8CBC107 22CBC182 60CBC021 8CBC106 22CBC181 61CBC091 60CBC020 2CBC007 85CBC004 5CBC023 25CBC003 61CBC189 61CBC189 61CBC189 61CBC189 61CBC180 60CBC005 61CBC029 80CBC001 280CBC001 280CBC001 280CBC001 40CBC012 80CBC001 80CBC002 80CBC001 80CBC002 80CBC001 80CBC002 80CBC001 80CBC002 80CBC001 80CBC002 80CBC001 80CBC002 80CBC001 80CBC004 80CBC004 81CBC086 81CBC086 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088 81CBC088	RADAR NO. 2 INT-LTS CONT-AFT UPR EQPT CLG FAN INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2 IFF COMPTR INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2 INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2 INT-LTS CONT-AFT UPR EQPT CLG FAN GUN DCDR RADAR NO. 2 APU PRIME SIG. DATA COMPUTER FUEL V POSITION SEAT ADJ AFT ARM STA 3 28 VDC 2 RADAR NO. 1 FU FCTN CONT IFR LT UTIL PWR REC XFMR RECT HSD MMD E BATT PWR/VOLT IND CANOPY PWR APU ENGINE START CANOPY CONT ARM STA 3 28 VDC 2 RADAR NO. 1 FU FCTN CONT IFR LT UTIL PWR REC XFMR RECT HSD MMD TO SEAT AND TO	L 115VAC Ø C L 115VAC Ø C L 115VAC Ø C L 115VAC Ø B L 115VAC Ø A L 115VAC Ø C U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC L 28VDC L 28VDC L 115VAC Ø C L 115VAC Ø B

Figure 2. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 163427 THRU 165221 (Sheet 2)

Change 7

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
E12 F1 F2 F3 F4 F5	80CBC005 68CBC009 84CBC089 84CBC090 61CBC242 61CBC243	MMD INS FCCA CH 1 FCCA CH 2 TACTS TACTS	L 115VAC Ø B E BATT 24/28VDC E BATT 24/28VDC E BATT 24/28VDC L 28VDC L 115VAC Ø A	

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS	
F6 F7 F8 F9 F10 F11 F12	60CBC003 61CBC048 1CBC075 1CBC085 1CBC027 80CBC010 80CBC004	RADAR NO. 1 FU FCTN CONT EMER BATT HTR UTIL PWR REC XFMR RECT HSD MMD	L 115VAC Ø A L 115VAC Ø A	

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52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-C042	UTILITY BATTERY ESS BUS CONTACTOR
1K-C079	FLIGHT CONTROL GROUND POWER RELAY NO. 11
1K-C080	FLIGHT CONTROL GROUND POWER RELAY NO. 12
1K-C097	EMERGENCY BATTERY ESS BUS CONTACTOR
1K-C111	LEFT DC BUS POWERED RELAY
1K-C128	UTILITY BATTERY SENSING RELAY
1K-C129	BATTERY ANTI-CYCLE TIMER RELAY
5K-C052	FUEL LOW LEVEL RELAY NO. 2
5K-C103	20K FT RELAY
5K-C107	EXTERNAL TANK PRESS CONTROL RELAY
5K-C168	EXTERNAL TANK PRECHECK RELAY
5K-C173	RIGHT EXTERNAL TANK CONTROL RELAY
5K-C174	LEFT EXTERNAL TANK CONTROL RELAY
5K-C175	CENTERLINE TANK CONTROL RELAY
5K-C183	INTERNAL TANK LOW PRESSURE RELAY
84K-C076	FCC B ASYMMETRY BRAKE RELAY NO. 2
84K-C077	FCC B ASYMMETRY BRAKE RELAY NO. 1
84K-C091	NOSEWHEEL STEERING RELAY

#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN  $250~\mathrm{MA}$
- 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010

3 F/A-18C 163427 THRU 163437, F/A-18D 163434 4 F/A-18C 163427 THRU 163437 5 F/A-18D 163434 6 164196 THRU 164279 ▶ 163985 THRU 164279 8 F/A-18C 163438 THRU 164278, F/A-18D 163436 THRU 164279 9 F/A-18C 163438 THRU 164278 10 F/A-18D 163436 THRU 164279 11 164627 AND UP 12 F/A-18C 164627 THRU 165221 13 F/A-18D 164649 THRU 164967 14 F/A-18D 15 F/A-18C 16 F/A-18C 163985 THRU 165221 17 163427 THRU 164279 18 F/A-18C 163427 THRU 163437, F/A-18D 163434 19 F/A-18C 163438 THRU 165221, F/A-18D 163436 THRU 165221 20 164627 THRU 165221 21 REFER TO SHEET 1 FOR CIRCUIT BREAKER LOCATION AND EFFECTIVITY. 22 163427 THRU 165206 23 163427 THRU 164912 AFTER F/A-18 AFC 232 24 F/A-18D 163434 THRU 163778; ALSO 163986 THRU 164967 BEFORE F/A-18 AFC 236 25 F/A-18C 163985 THRU 165221 BEFORE F/A-18 AFC 236 26 163427 THRU 163782; ALSO 163985 THRU 165221 BEFORE F/A-18 AFC 236 27 163985 THRU 165221 AFTER F/A-18 AFC 236 28 F/A-18D 163986 THRU 164967 AFTER F/A-18 AFC 236 29 F/A-18C 163985 THRU 165221 AFTER F/A-18 AFC 236

Figure 2. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 163427 THRU 165221 (Sheet 4)

Change 2

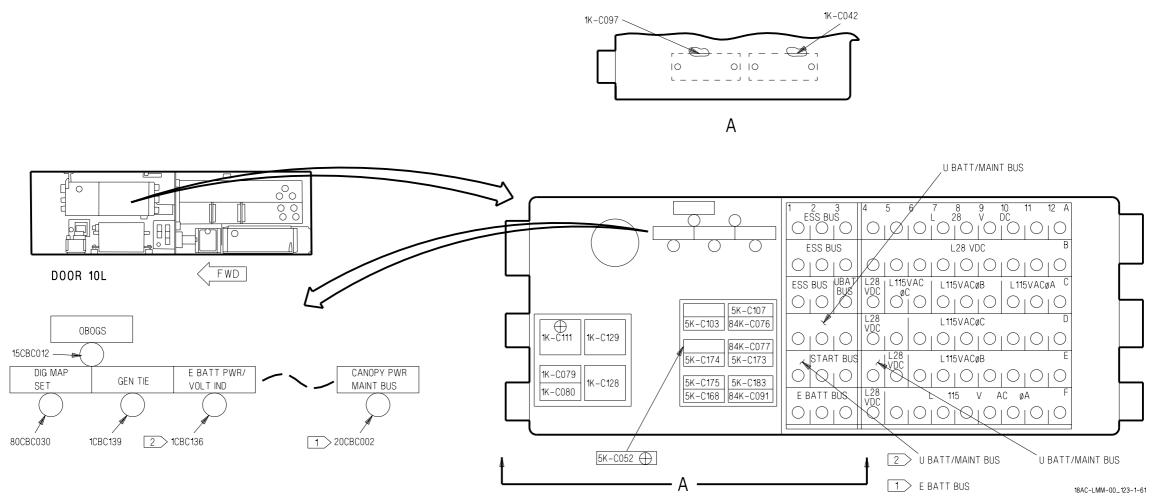


Figure 3. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 165222 AND UP (Sheet 1)

Figure 3. Figure 3.

Change 2

52A-C159	NO. 8 CIR	CUIT BREAKER/RELAY PANEL A	ASSEMBLY	52A-C159	NO. 8 CIF	RCUIT BREAKER/RELAY PANEL	. ASSEMBLY
ZONE	REF DES	NOMENCLATURE	BUS	ZONE	REF DES	NOMENCLATURE	BUS
3 A- 3 A- 3 A- 3 A- 3 A- 3 A- 41 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B11 B12 C1 C2 C3 1 C4 C5 1 C6 C7 C7	15CBC012 80CBC030 1CBC139 20CBC002 1CBC136 24CBC018 4CBC002 5CBC001 60CBC023 5CBC050 5CBC101 85CBC045 5CBC016 84CBC087 1CBC147 84CBC083 22CBC035 76CBC027 78CBC009 84CBC084 60CBC026 5CBC002 1CBC088 60CBC026 5CBC002 1CBC088 61CBC188 61CBC188 61CBC188 61CBC188 61CBC188 61CBC092 10CBC016 84CBC081 1CBC039 8CBC105 61CBC180 78CBC019 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108 8CBC108	OBOGS DIG MAP SET GEN TIE CANOPY PWR MAINT BUS E BATT PWR/VOLT IND BL AIR LEAK DET LOOP A FIRE DET LOOP B EMER IFR RADAR NO. 3 FUEL LOW LVL WRN FUEL TK PRESS MEMORY UNIT EXT FUEL TK CONT NOSE WHL STRG BUS TIE ASY BK FCC L BL AIR CONT V INTER COMM IFF XMTR-REC RATIO CHANGER RADAR CONT IFR PROBE UTIL PWR REC RADAR NO. 1 L DC BUS SENSING ARM STA 2 28 VDC 2 GUN DCDR HYD ISOL PITCH TRIM CHECK BATT RELAY SW U BATT PWR/VOLT IND INT-LTS CONT-AFT ARM STA 4 28 VDC 2 BFN INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2	L 28VDC L 28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC E BATT 24/28 VDC ESS 24/28VDC ESS 24/28VDC ESS 24/28VDC L 28VDC ESS 24/28VDC ESS 24/28VDC L 28VDC L 15VAC 0 C L 115VAC 0 C L 115VAC 0 C L 115VAC 0 C	1 C8 2 C8 C9 C10 C10 C10 C12 D1 D2 D3 1 D4 2 D4 1 D5 D6 D8 D9 D10 D11 D12 2 E1 E2 E3 E4 1 E5 E6 E8 E9 E10 E11 E12 F1 F2 F3 F4 F5 F6 F8 F9 F10	8CBC107 22CBC182 60CBC021 8CBC106 22CBC181 60CBC020 2CBC007 85CBC004 5CBC023 25CBC003 61CBC180 60CBC005 5CBC003 1CBC087 1CBC029 80CBC012 80CBC006 1CBC186 20CBC001 3CBC002 2CBC001 3CBC012 80CBC002 2CBC001 3CBC012 80CBC005 61CBC180 61CBC186 61CBC186 61CBC186 61CBC186 61CBC186 61CBC186 61CBC186 61CBC186 61CBC186 61CBC28 80CBC004 5CBC005 68CBC009 84CBC089 84CBC089 84CBC089 84CBC089 84CBC089 84CBC089 84CBC089 84CBC0803 1CBC075 1CBC085 1CBC027	INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2 INT-LTS CONT-AFT UPR EQPT CLG FAN RADAR NO. 2 APU PRIME SIG. DATA COMPUTER FUEL V POSITION SEAT ADJ AFT ARM STA 3 28 VDC 2 ARM STA 4 28 VDC 2 RADAR NO. 1 IFR LT UTIL PWR REC XFMR RECT HSD MMD E BATT PWR/VOLT IND CANOPY PWR APU ENGINE START CANOPY CONT ARM STA 3 28 VDC 2 RADAR NO. 1 LIQ LVL CONT UTIL PWR REC XFMR RECT HSD MMD INS FCCA CH 1 FCCA CH 2 TACTS RADAR NO. 1 EMER BATT HTR UTIL PWR REC XFMR RECT	L 115VAC 0 B L 115VAC 0 B L 115VAC 0 B L 115VAC 0 A L 115VAC 0 A L 115VAC 0 A U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC U BATT/MAINT 24/28VDC L 28VDC L 28VDC L 28VDC L 115VAC 0 C L 115VAC 0 B L 115VAC 0 A

Figure 3. No. 8 Circuit Breaker/Relay Panel Assembly - 52A-C159 - 165222 AND UP (Sheet 2)

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Change 2

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES NOMENCLATURE BUS			
F11	80CBC010	HSD	L 115VAC Ø A	

52A-C159	NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY			
ZONE	REF DES NOMENCLATURE BUS		BUS	
F12	80CBC004	MMD	L 115VAC Ø A	

Change 7

52A-C159	No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY
----------	--

REF DES	COMMON NAME
1K-C042	UTILITY BATTERY ESS BUS CONTACTOR
1K-C079	FLIGHT CONTROL GROUND POWER RELAY NO. 11
1K-C080	FLIGHT CONTROL GROUND POWER RELAY NO. 12
1K-C097	EMERGENCY BATTERY ESS BUS CONTACTOR
1K-C111	LEFT DC BUS POWERED RELAY
1K-C128	UTILITY BATTERY SENSING RELAY
1K-C129	BATTERY ANTI-CYCLE TIMER RELAY
5K-C052	FUEL LOW LEVEL RELAY NO. 2
5K-C103	20K FT RELAY
5K-C107	EXTERNAL TANK PRESS CONTROL RELAY
5K-C168	EXTERNAL TANK PRECHECK RELAY
5K-C173	RIGHT EXTERNAL TANK CONTROL RELAY
5K-C174	LEFT EXTERNAL TANK CONTROL RELAY
5K-C175	CENTERLINE TANK CONTROL RELAY
1	

## 52A-C159 No. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
5K-C183 84K-C076 84K-C077 84K-C091	INTERNAL TANK LOW PRESSURE RELAY FCC B ASYMMETRY BRAKE RELAY NO. 2 FCC B ASYMMETRY BRAKE RELAY NO. 1 NOSEWHEEL STEERING RELAY

#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL.
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA.
- 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010.

1 F/A-18D

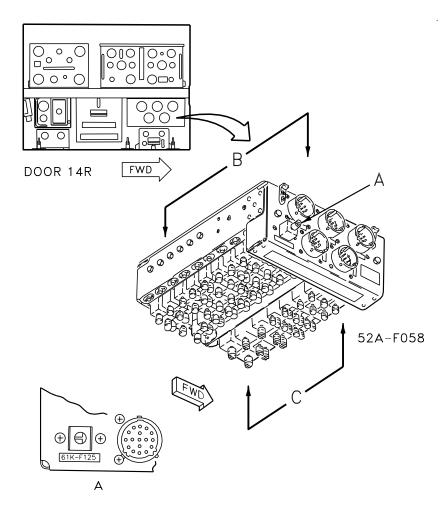
2 F/A-18C

3 REFER TO SHEET 1 FOR CIRCUIT BREAKER LOCATION AND EFFECTIVITY.

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Figure 4. No. 2 Relay Panel Assembly - 52A-F058 (Sheet 1)

Change 7

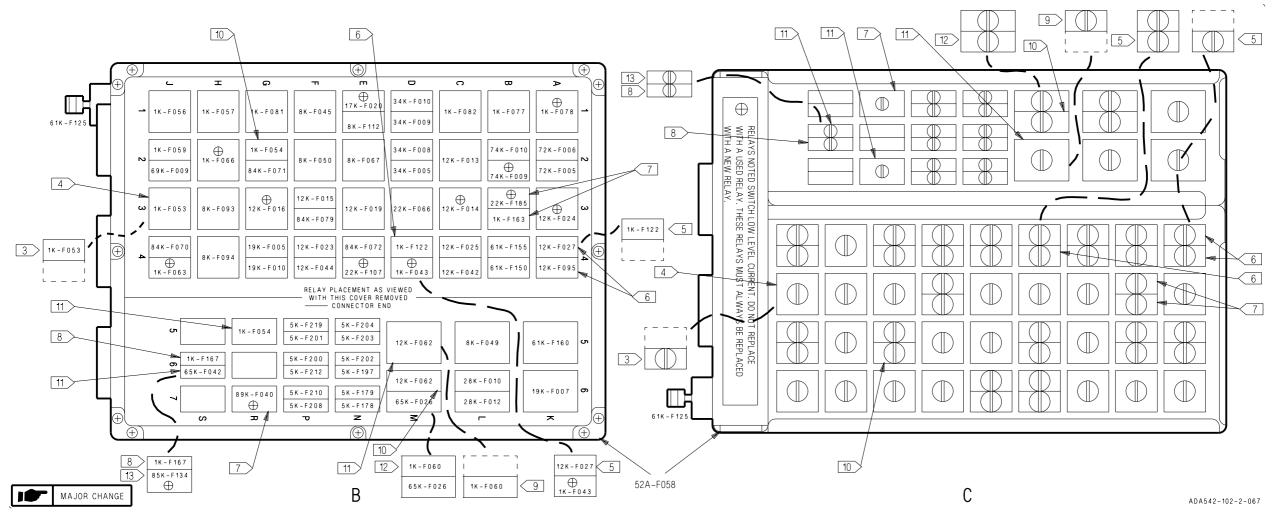


Figure 4. No. 2 Relay Panel Assembly - 52A-F058 (Sheet 2)

Figure 4.

Change 2

52A-F058

## NO. 2 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
1K-F043	CHECK BATTERY SWITCH RELAY
1K-F053	GROUND POWER RELAY NO. 1
1K-F054	GROUND POWER RELAY NO. 2
1K-F056	GROUND POWER RELAY NO. 4
1K-F057	GROUND POWER RELAY NO. 5
1K-F059	GROUND POWER RELAY NO. 7
12 1K-F060	GROUND POWER RELAY NO. 19
1K-F063	GROUND POWER RELAY NO. 16
1K-F066	GROUND POWER RELAY NO. 17
1K-F077	GROUND POWER RELAY NO. 9
1K-F078	GROUND POWER RELAY NO. 10
1K-F081	GROUND POWER RELAY NO. 13
1K-F082	GROUND POWER RELAY NO. 14
1K-F122	GROUND POWER RELAY NO. 28
7 1K-F163	GROUND POWER RELAY NO. 33
8 1K-F167	GROUND POWER RELAY NO. 35
5K-F178	TANK 1 LCV PILOT LINE SHUTOFF VALVE CONTROL RELAY
5K-F179	REDISTRIBUTION VALVE CONTROL RELAY
5K-F197	CROSSFEED VALVE CONTROL RELAY
5K-F200	LEFT WING DIVERTER VALVE CONTROL RELAY NO. 1
5K-F201	LEFT WING DIVERTER VALVE CONTROL RELAY NO. 2
5K-F202	RIGHT WING DIVERTER VALVE CONTROL RELAY NO. 1
5K-F203	RIGHT WING DIVERTER VALVE CONTROL RELAY NO. 2
5K-F204	TANK 2 LCV PILOT LINE SHUTOFF VALVE CONTROL RELAY
5K-F208	TANK 3 LCV PILOT LINE SHUTOFF VALVE CONTROL RELAY
5K-F210	LEFT WING LCV PILOT LINE SHUTOFF VALVE CONTROL
	RELAY

## 52A-F058

## **NO. 2 RELAY PANEL ASSEMBLY**

REF DES	COMMON NAME
5K-F212	RIGHT WING LCV PILOT LINE SHUTOFF VALVE CONTROL
	RELAY
5K-F219	FUEL TEST LIGHT RELAY
8K-F045	ANNUNCIATOR LIGHT TEST RELAY NO. 1
8K-F049	ANNUNCIATOR DIMMING RELAY NO. 1
8K-F050	ANNUNCIATOR DIMMING RELAY NO. 2
8K-F067	ANNUNCIATOR LIGHT TEST RELAY NO. 2
8K-F093	ANNUNCIATOR DIMMING RELAY NO. 3
8K-F094	ANNUNCIATOR LIGHT TEST RELAY NO. 3
8K-F112	ANNUNCIATOR DIMMING RELAY NO. 4
12K-F013	NG WOW RELAY NO. 2
12K-F014	RMG WOW RELAY NO. 5
12K-F015	RMG WOW RELAY NO. 1
12K-F016	RMG WOW RELAY NO. 2
12K-F019	LMG WOW RELAY NO. 3
12K-F023	ALL GEARS DOWN AND LOCKED RELAY
5 12K-F024	ALL GEARS UP AND LOCKED RELAY
6 12K-F024	ALL GEARS UP AND LOCKED RELAY NO. 1
12K-F025	LAUNCH BAR RETRACTED RELAY
12K-F027	ALL GEARS UP RELAY
12K-F042	RMG WOW RELAY NO. 6
12K-F044	NG WOW RELAY
12K-F062	RMG WOW RELAY NO. 7
6 12K-F095	ALL GEARS UP AND LOCKED RELAY NO. 2
17K-F020	RIGHT WING UNLOCKED RELAY
19K-F005	HOOK DOWN RELAY
19K-F007	ARG HOOK CONTROL VALVE RELAY

Figure 4.

Figure 4. No. 2 Relay Panel Assembly - 52A-F058 (Sheet 3)

# A1-F18AC-LMM-000

Change 7

## 52A-F058

#### NO. 2 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
19K-F010	HOOK WARNING LIGHT CONTROL RELAY
22K-F066	RIGHT CABIN COOLING FAN CONTROL RELAY
22K-F107	ESSENTIAL AVIONICS HOT CAUTION CONTROL RELAY
7 22K-F185	AV GROUND COOLING FAN ON RELAY
28K-F010	RIGHT PITOT ANTI-ICE RELAY
28K-F012	RIGHT PROBE HEATER RELAY
34K-F005	APPROACH LIGHTS CONTROL RELAY
34K-F008	AOA LOW RELAY
34K-F009	AOA CENTER RELAY
34K-F010	AOA HIGH RELAY
61K-F125	STATION 5 POWER CONTROL RELAY
61K-F150	RIGHT ENGINE DERICHMENT RELAY
61K-F155	CLC ON RELAY
61K-F160	AMAC ENCODER/DECODER ON RELAY
10 65K-F026	ALE-39 SEQUENCE POWER RELAY
11 65K-F026	ALE-47 SEQUENCE POWER RELAY
11 65K-F042	DISPENSE LIGHT RELAY
69K-F009	TACAN ON RELAY
72K-F005	BEACON ON RELAY
72K-F006	AUG RECEIVER ON RELAY
74K-F009	ILS CONTROL RELAY NO. 1
74K-F010	ILS CONTROL RELAY NO. 2
84K-F070	FCCA ASYMMETRY BRAKE RELAY NO. 1
84K-F071	FCCA ASYMMETRY BRAKE RELAY NO. 2
84K-F072	ENGINE APC RELAY NO. 1

## 52A-F058

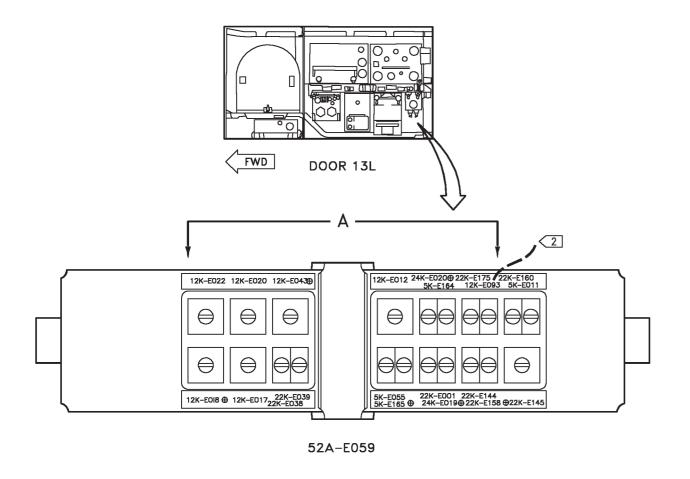
#### NO. 2 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
84K-F079	ENGINE APC RELAY NO. 2
13 85K-F134	SDC ZEROIZE RELAY
7 89K-F040	ATARS INSTALLED RELAY

#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA
- 2. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010
  - 3 F/A-18C
  - 4 F/A-18D
  - 5 163427 THRU 163782
- 6 163985 AND UP
- 7 F/A-18D 164279 AND UP
- 8 164627 AND UP; ALSO 163429 THRU 164279 AFTER F/A-18 AFC 258
- 9 163985 THRU 164980 AFTER F/A-18 AFC 236
- 10 163427 THRU 164980
- 11 165171 AND UP
- 12 165222 AND UP; ALSO F/A-18C 165171 THRU 165221 AFTER F/A-18 AFC 236
- 13 163429 THRU 164279 AFTER F/A-18 AFC 258

Change 7



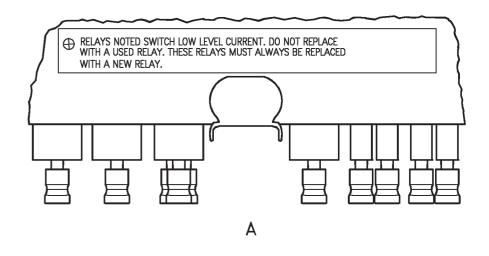


Figure 5. No. 3 Relay Panel Assembly - 52A-E059 - 163427 THRU 163782; ALSO 163985 THRU 165221 BEFORE F/A-18 AFC 236 (Sheet 1)

neet 1)

Figure 5.

18AC-LMM-00-(103-1)44-C/

Figure 5.

Change 7

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52A-E059	NO.	3	RELAY	PANEL	ASSEMBLY
32/\ E003	110.	~		I / \	/ VOCEIVIDE I

REF DES	COMMON NAME
5K-E011	IFR LIGHT CONTROL RELAY
5K-E055	FUEL LOW LEVEL BIT RELAY
5K-E164	FUEL LOW LEVEL BIT RELAY NO. 2
5K-E165	FUEL LOW LEVEL BIT RELAY NO. 3
12K-E012	RMG WOW RELAY NO. 3
12K-E017	LMG WOW RELAY NO. 1
12K-E018	LMG WOW RELAY NO. 2
12K-E020	LMG WOW RELAY NO. 4
12K-E022	LMG WOW RELAY NO. 6
12K-E043	GEAR HANDLE CONTROL RELAY
2 12K-E093	GEAR HANDLE CONTROL RELAY
	NO. 2
22K-E001	ECM VALVE CONTROL RELAY
22K-E038	SECONDARY EJECTOR CONTROL
	RELAY
22K-E039	PRIMARY EJECTOR CONTROL
	RELAY

52A-E059	NO	3 RFI	AY PANFI	<b>ASSEMBLY</b>

REF DES	COMMON NAME
22K-E144 22K-E145 22K-E158 22K-E160 22K-E175 24K-E019 24K-E020	ECS OFF/RAM RELAY ECS AUTO/MANUAL RELAY NO. 1 ECS AUTO/MANUAL RELAY NO. 2 RAM/DUMP RELAY DUMP/RAM DUMP RELAY LEFT BLEED AIR OFF RELAY RIGHT BLEED AIR OFF RELAY

#### LEGEND

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA.
- 2 F/A-18D
  - 3. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010.

Figure 5. No. 3 Relay Panel Assembly - 52A-E059 - 163427 THRU 163782; ALSO 163985 THRU 165221 BEFORE F/A-18 AFC 236 (Sheet 2)

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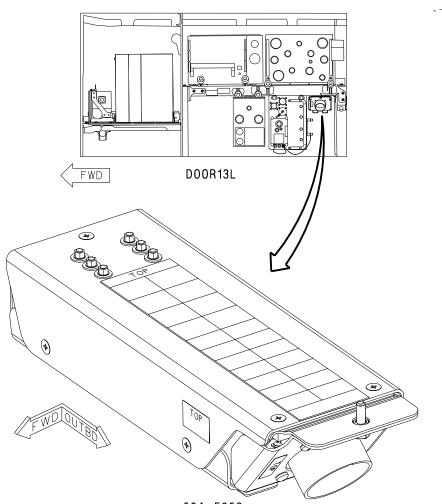


Figure 6. No. 3 Relay Panel Assembly - 52A-E059 - 165222 AND UP; ALSO 163985 THRU 165221 AFTER F/A-18 AFC 236 (Sheet 1)

Change 7

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#### 52A-E059 NO. 3 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
5K-E011	IFR LIGHT CONTROL RELAY
5K-E055	FUEL LOW LEVEL BIT RELAY
	NO. 1
5K-E164	FUEL LOW LEVEL BIT RELAY
	NO. 2
5K-E165	FUEL LOW LEVEL BIT RELAY
	NO. 3
12K-E012	RMG WOW RELAY NO. 3
12K-E017	LMG WOW RELAY NO. 1
12K-E018	LMG WOW RELAY NO. 2
12K-E020	LMG WOW RELAY NO. 4
12K-E022	LMG WOW RELAY NO. 6
12K-E043	GEAR HANDLE CONTROL
	RELAY
2 12K-E093	GEAR HANDLE CONTROL
	RELAY NO. 2
22K-E001	ECM VALVE CONTROL RELAY
22K-E038	SECONDARY EJECTOR
	CONTROL RELAY
22K-E039	PRIMARY EJECTOR CONTROL
	RELAY

## 52A-E059 NO. 3 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
22K-E144 22K-E145	ECS RELAY ECS AUTO/MANUAL RELAY NO. 1
22K-E158	ECS AUTO/MANUAL RELAY NO. 2
22K-E160 22K-E175 24K-E019 24K-E020	RAM/DUMP RELAY DUMP/RAM DUMP RELAY LEFT BLEED AIR OFF RELAY RIGHT BLEED AIR OFF RELAY

#### **LEGEND**

- ⊕ LOW LEVEL RELAY SYMBOL
- 1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA.
- 2 F/A-18D
  - 3. DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010.

Change 2

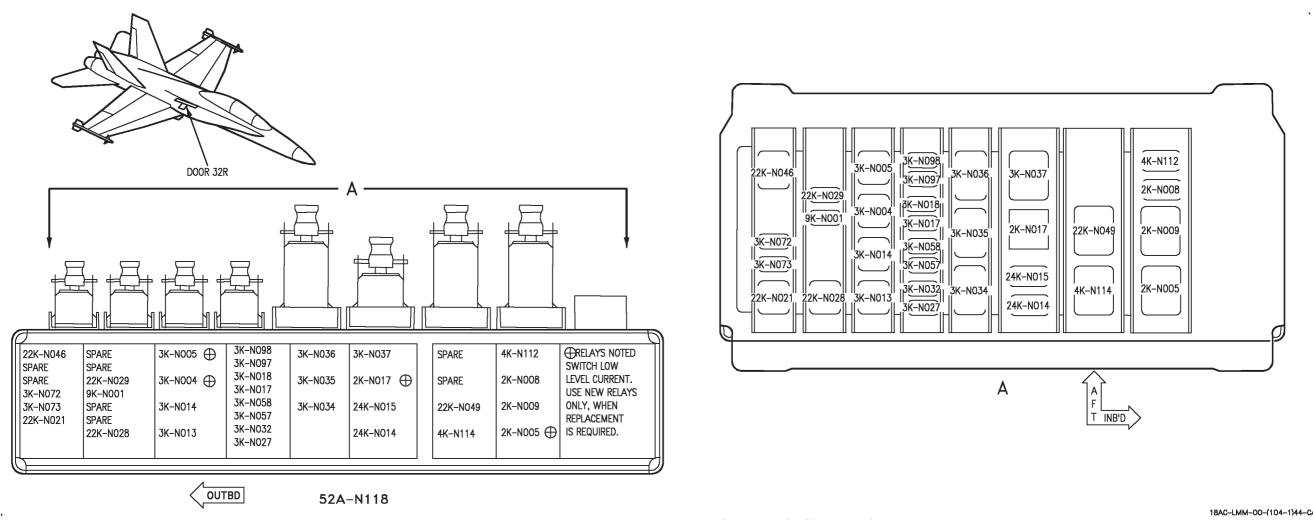


Figure 7. No. 4 Relay Panel Assembly - 52A-N118 (Sheet 1)

Figure 7.

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52A-N118	NO	1	DEI AV	DANEL	ASSEMBLY
JZW-INTTO	INU.	4	RELAI	PANEL	ASSEMBLI

224-IV110	NO. 4 RELAT PANEL ASSEMBLT
REF DES	COMMON NAME
2K-N005	APU COOLDOWN TIMER RELAY
2K-N008	APU EMERGENCY SHUTDOWN RELAY
2K-N009	APU SHUTDOWN TIMER RELAY
2K-N017	VALVE POSITION STATUS DELAY RELAY
3K-N004	L CRANK RELAY NO. 1
3K-N005	R CRANK RELAY NO. 1
3K-N013	L CRANK RELAY NO. 2
3K-N014	R CRANK RELAY NO. 2
3K-N017	L GEN ON RELAY
3K-N018	R GEN ON RELAY
3K-N027	L INLET BLEED AIR DOOR CONTROL
	RELAY
3K-N032	R INLET BLEED AIR DOOR CONTROL
	RELAY
3K-N034	L INLET BLEED AIR DOOR RETRACT
	CUTOFF RELAY
3K-N035	L INLET BLEED AIR DOOR EXTEND
	CUTOFF RELAY
3K-N036	R INLET BLEED AIR DOOR EXTEND
	CUTOFF RELAY
3K-N037	R INLET BLEED AIR DOOR RETRACT
	CUTOFF RELAY
3K-N057	L N2 LOCKUP RELAY
3K-N058	R N2 LOCKUP RELAY
3K-N072	L AMAD OVERHEAT RELAY
3K-N073	R AMAD OVERHEAT RELAY

52A-N118 NO. 4 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
3K-N097	LEFT BLEED AIR DOOR SENSE RELAY
3K-N098	RIGHT BLEED AIR DOOR SENSE RELAY
4K-N112	APU FIRE EXTINGUISHER DISCHARGE
	RELAY
4K-N114	APU SPOOLDOWN AND AUTO DISCHARGE
	RELAY
9K-N001	ENGINE ANTI-ICE VALVE CONTROL
	RELAY
22K-N021	ACS SHUTOFF RELAY
22K-N028	GND TEST RELAY
22K-N029	ISOLATION VALVE CONTROL RELAY
22K-N046	BLEED AIR OVER PRESSURE RELAY
22K-N049	PNEUMATIC DUMP TIMER RELAY
24K-N014	L BLEED AIR LEAK SHUTOFF LATCHING
	RELAY
24K-N015	R BLEED AIR LEAK SHUTOFF LATCHING
	RELAY
22K-N021 22K-N028 22K-N029 22K-N046 22K-N049 24K-N014	ENGINE ANTI-ICE VALVE CONTROL RELAY ACS SHUTOFF RELAY GND TEST RELAY ISOLATION VALVE CONTROL RELAY BLEED AIR OVER PRESSURE RELAY PNEUMATIC DUMP TIMER RELAY L BLEED AIR LEAK SHUTOFF LATCHING RELAY R BLEED AIR LEAK SHUTOFF LATCHING

#### LEGEND

⊕ LOW LEVEL RELAY SYMBOL

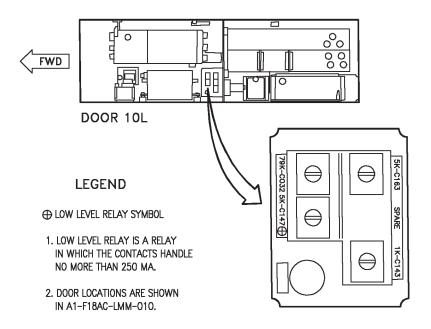
1. LOW LEVEL RELAY IS A RELAY IN WHICH THE CONTACTS HANDLE NO MORE THAN 250 MA

Figure 7. No. 4 Relay Panel Assembly - 52A-N118 (Sheet 2)

Figure 7.

Change 2

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52A-C161	NO. 9 RELAY PANEL ASSEMBLY
REF DES	NOMENCLATURE
1K-C143 5K-C147 5K-C163 79K-C032	GENERATOR AUTO RESET TIME DELAY RELAY FUEL LOW LEVEL WARNING TIMER RELAY FUEL LOW LEVEL RELAY NO. 1 VIDEO RECORDER DC POWER RELAY

18AC-LMM-00-(110-1)53-CATI

Figure 8. No. 9 Relay Panel Assembly - 52A-C161

Change 2

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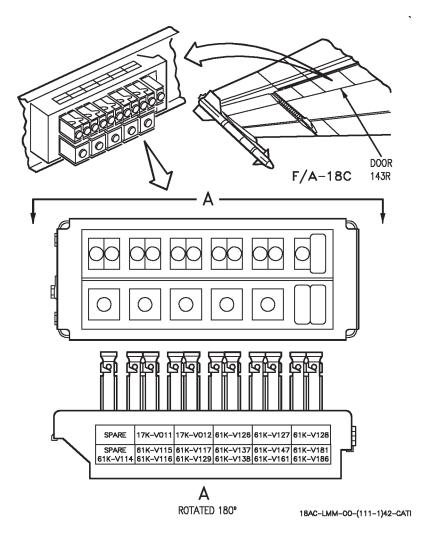


Figure 9. No. 10 Relay Panel Assembly - 52A-V044 (Sheet 1)

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18AC-LMM-00-(111-2)42-CATI

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Change 2

# LEGEND 1 F/A-18D 163434 THRU 164272 2 F/A-18D 164279 AND UP F/A-18D 2 2 61K-V181 | 17K-V011 | 17K-V012 | 61K-V126 | 61K-V127 | 61K-V128 SPARE | 61K-V115 61K-V117 61K-V137 61K-V147 | SPARE | 61K-V116 61K-V129 61K-V138 61K-V161 61K-V186 SPARE 61K-V181 < 1 R ROTATED 180°

Figure 9. No. 10 Relay Panel Assembly - 52A-V044 (Sheet 2)

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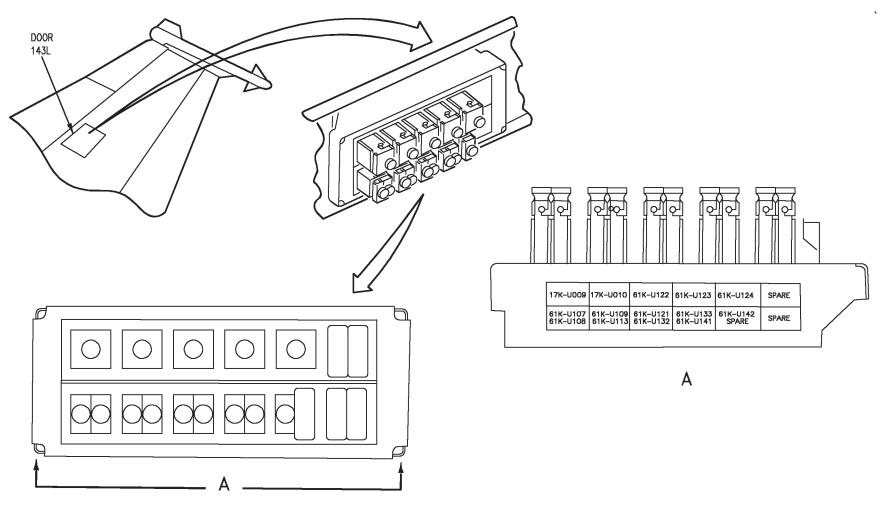
Change 2 Page 33

## 52A-V044 NO. 10 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
17K-V011	RIGHT WING SPREAD RELAY
17K-V012	RIGHT WING FOLD RELAY
61K-V114	STATION 6 28VDC NO. 1 POWER RELAY
61K-V115	STATION 6 28VDC NO. 2 POWER RELAY
61K-V116	STATION 7 28VDC NO. 2 POWER RELAY
61K-V117	STATION 8 28VDC NO. 2 POWER RELAY
61K-V126	STATION 6 POWER CONTROL RELAY
61K-V127	STATION 7 POWER CONTROL RELAY
61K-V128	STATION 8 POWER CONTROL RELAY
61K-V129	STATION 9 POWER CONTROL RELAY
61K-V137	STATION 7 ØC POWER CONTROL RELAY
61K-V138	STATION 8 ØC POWER CONTROL RELAY
61K-V147	STATION 7 28VDC NO. 1 POWER RELAY
61K-V161	STATION 8 28VDC NO. 1 POWER RELAY
61K-V181	STATION 5 28VDC NO. 1 POWER RELAY
61K-V186	STATION 5 28VDC NO. 2 POWER RELAY

Figure 9. No. 10 Relay Panel Assembly - 52A-V044 (Sheet 3)

Change 2



18AC-LMM-00-(112-1)44-CATI

Figure 10. No. 11 Relay Panel Assembly - 52A-U045 (Sheet 1)

015 02

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### 52A-U045 NO. 11 RELAY PANEL ASSEMBLY

REF DES	COMMON NAME
17K-U009	LEFT WING SPREAD RELAY
17K-U010	LEFT WING FOLD RELAY
61K-U107	STATION 4 28VDC NO. 1 POWER RELAY
61K-U108	STATION 4 28VDC NO. 2 POWER RELAY
61K-U109	STATION 2 28VDC NO. 2 POWER RELAY
61K-U113	STATION 3 28VDC NO. 2 POWER RELAY
61K-U121	STATION 1 POWER CONTROL RELAY
61K-U122	STATION 2 POWER CONTROL RELAY
61K-U123	STATION 3 POWER CONTROL RELAY
61K-U124	STATION 4 POWER CONTROL RELAY
61K-U132	STATION 2 ØC POWER CONTROL RELAY
61K-U133	STATION 3 ØC POWER CONTROL RELAY
61K-U141	STATION 3 28VDC NO. 1 POWER RELAY
61K-U142	STATION 2 28VDC NO. 1 POWER RELAY

Change 5

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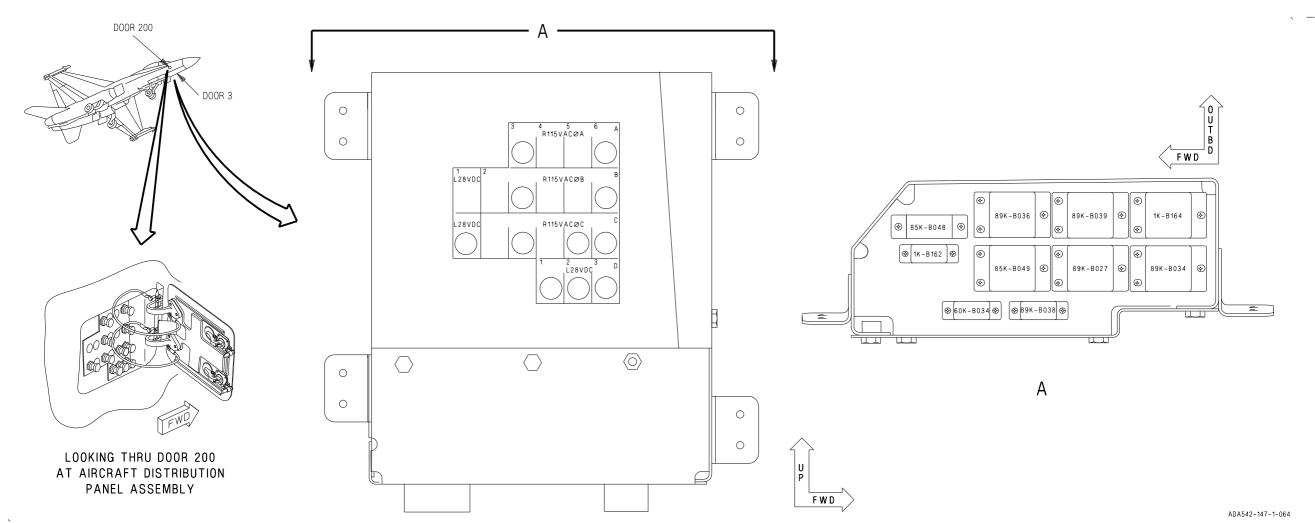


Figure 11. Aircraft Distribution Panel Assembly - 89A-B002 - F/A-18D 164649 AND UP RECCE INSTALLED (Sheet 1)

Figure 11.

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Change 5

89A-B002 AIRCRAFT DISTRIBUTION PANEL ASSEMBLY			
ZONE	REF DES	NOMENCLATURE	BUS
A3 A6 B3 B6 C1 C3 C5 C6 D1 D2 D3	89CBB028 89CBB008 89CBB029 89CBB009 89CBB011 89CBB030 89CBB014 89CBB010 89CBB023 89CBB037 89CBB031	IR WINDOW FAN/HTR ATARS SYS #1 IR WINDOW FAN/HTR ATARS SYS #1 VRG BRAKE IR WINDOW FAN/HTR ATARS SYS #2 ATARS SYS #1 ENCLOSURE VALVES WDO TEMP CONTROL ATARS CONTROL	R 115VAC Ø A R 115VAC Ø A R 115VAC Ø B R 115VAC Ø B L 28VDC R 115VAC Ø C R 115VAC Ø C R 115VAC Ø C L 28VDC L 28VDC L 28VDC L 28VDC L 28VDC

03A-BUU2	AIRCRAFT DISTRIBUTION PAINEL ASSEMBLY
REF DES	COMMON NAME
1K-B162	GND POWER RELAY NO. 31
1K-B164	EXTERNAL POWER RELAY
60K-B034	RADAR SWITCH RELAY
85K-B048	ENCLOSURE VALVE CONTROL RELAY
85K-B049	FAN/HEATER NO. 1 RELAY
89K-B027	IR WINDOW HEATER RELAY
89K-B034	WOW RELAY
89K-B036	IR WINDOW FAN (DOOR CLOSED) RELAY
89K-B038	ATARS ON RELAY NO. 1
89K-B039	ATARS ON RELAY NO. 2

AIRCRAFT DISTRIBITION DANFI ASSEMBLY

894-R002

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **OPERATION - BOARDING LADDER AND CANOPY**

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

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### **Record of Applicable Technical Directives**

None

### 1. BOARDING LADDER OPERATION.

## **Support Equipment Required**

None

### **Materials Required**

None



To prevent damage to boarding ladder from jet blast, ladder must be stowed when not in use.

Whether engine inlet screens are or are not installed, do not try to extend or stow boarding ladder with left engine operating.

The possibility exists that the internal dampening device in the telescoping drag brace will fail causing the drag brace to become inoperative.

#### 2. EXTENSION.



To prevent injury to personnel, boarding ladder must be supported before releasing latches.

a. Manually support boarding ladder and release forward and aft latches on forward beam on underside of leading edge extension (LEX) (figure 1).



To prevent damage to boarding ladder, do not allow boarding ladder to free-fall during extension.

- b. Manually rotate boarding ladder down to full extended position, and make sure telescoping drag brace locks when ladder is fully extended.
- c. Rotate side brace up and insert locking pin into locking receptacle on side of fuselage between doors 10L and 13L.

#### 3. STOWAGE.

- a. Pull back on interlock collar on side brace to disengage locking pin from locking receptacle on side of fuselage (figure 1).
  - b. Allow side brace to rotate full down.
- c. Pull down on locking collar on telescoping drag brace, allowing drag brace to unlock.
- d. Rotate boarding ladder aft and full up (compressing telescoping drag brace). As ladder nears LEX, make sure side brace correctly engages bracket on ladder assembly.
- e. Manually engage forward and aft latches by pushing up until latches are locked flush with forward beam of boarding ladder.

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### 4. CANOPY OPERATION.

# **Support Equipment Required**

Part Number or Type Designation

Nomenclature

Torque Wrench, 0 to 120 Inch-Pounds

## **Materials Required**

Specification or Part Number

**Nomenclature** 

CCC-C-458, Type III, Class 2 (CAGE 81348) Cloth, Flannel

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# WARNING

To prevent death or injury from electrical shock, make sure windshield and canopy static charge is discharged.

To prevent damage to canopy and surrounding panels, do not try to operate canopy either electrically or manually unless panels 96, 7L and 7R are either fully installed or fully removed from the aircraft.

a. On 163985 AND UP, do windshield and canopy static charge discharging procedure (if not previously done) (A1-F18AC-PCM-000).



To prevent damage to canopy from excessive air loads, canopy must not be operated and must be closed and locked in winds more than 60 knots.

5. **PRECAUTIONS.** In case of canopy actuation system failure, observe the precautions below.

#### 6. Electrical Failure.

- a. If an electrical failure occurs with the canopy open, do not close canopy manually unless forced to do so because of weather conditions.
- b. If an electrical failure occurs with the canopy closed, try to open canopy as stated below:

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Page 6A/(6B blank)

- (1) Apply external electrical power and try to open canopy (WP004 00).
- (2) If canopy will not open electrically, disable canopy electrical system by opening door 10L, and on No. 8 circuit breaker panel, open CANOPY PWR (20CBC002) and CANOPY CONT (20CBC001) circuit breakers.
- (3) Try to open canopy using external manual opening receptacle. (Refer to paragraph 11, this WP.)

#### 7. Mechanical Failure.

a. If a mechanical failure occurs with the canopy open, do not close canopy electrically unless forced to do so because of weather conditions.

b. If a mechanical failure occurs with the canopy closed, try to open canopy using internal or external canopy control switch. (Refer to paragraph 10 or 15, this WP.)

### 8. Dual Electrical/Mechanical Failure.

- a. If a dual electrical/mechanical failure occurs with the canopy open, move aircraft into hangar to protect cockpit from weather, troubleshoot and correct failures (A1-F18AC-120-200, F/A-18A AND F/A-18C 163427 THRU 164067 WP011 00, F/A-18B AND F/A-18D, 163434 THRU 164068 WP012 00; or A1-F18AE-120-200, F/A-18C 164197 AND UP WP009 00, F/A-18D 164196 AND UP WP010 00).
- b. If a dual electrical/mechanical failure occurs with the canopy closed and no crewmember/maintenance personnel in cockpit, do the substeps below:

#### NOTE

Do not move aircraft until access to cockpit is possible.

- $\begin{array}{c} (1) \ \ Remove\ canopy\ (A1-F18AC-120-300,\ F/A-18A\ AND\ F/A-18C\ 163427\ THRU\ 164067\ -\ WP063\ 00,\ F/A-18B\ AND\ F/A-18D\ 163434\ THRU\ 164068\ -\ WP087\ 00;\ or\ A1-F18AE-120-300,\ F/A-18C\ 164197\ AND\ UP\ -\ WP045\ 00,\ F/A-18D\ 164196\ AND\ UP\ -\ WP049\ 00). \end{array}$
- c. If a dual electrical/mechanical failure occurs with the canopy closed and crewmember/maintenance personnel in cockpit, do the substeps below:

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# WARNING

To prevent injury to personnel trapped in cockpit from extreme heat buildup from sunlight, the aircraft must be moved under protective cover (hangar) and personnel must be removed as soon as possible.

To prevent injury to personnel and damage to aircraft, do not use the internal or external canopy jettison system.

- (1) Remove personnel from cockpit (A1-F18AC-LMM-020, WP003 00).
- (2) Remove canopy (A1-F18AC-120-300, F/A-18A AND F/A-18C 163427 THRU 164067 WP063 00, F/A-18B AND F/A-18D 163434 THRU 164068 WP087 00; or A1-F18AE-120-300, F/A-18C 164197 AND UP WP045 00, F/A-18D 164196 AND UP WP049 00).

#### 9. EXTERNAL.



To prevent damage to electronic components from snow falling into cockpit, snow must be removed from canopy.

a. Using a flannel cloth, remove snow from canopy using caution not to scratch canopy surface.

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b. If canopy is frozen or covered with ice, deice canopy (A1-F18AC-PCM-000).

### 10. Electrical Opening.



To prevent damage to canopy, make sure door 96 is completely installed or removed.

#### NOTE

As a result of reduced battery capacity at low temperatures, the canopy should not be operated using battery power when ambient temperature is below 0°F.

- a. Open door 9 (figure 2) (A1-F18AC-LMM-010).
- b. Set and hold external canopy control switch (inside door 9) to OPEN until canopy is fully opened then release.
  - c. Close door 9 (A1-F18AC-LMM-010).
- d. If canopy does not open electrically, do paragraph 11, Manual Opening.

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# WARNING

To prevent death or injury from firing cartridges, make sure SAFE/ARMED handle is up in SAFE position, and ejection control handle and canopy jettison ground safety pins are installed.

- e. Before entering cockpit, make sure ejection seat SAFE/ARMED handle is up in SAFE position, ejection control handle and canopy jettison ground safety pins are installed (A1-F18AC-PCM-000).
  - f. If canopy did not open electrically, do substeps below:
- (1) On 161353 THRU 161528 BEFORE AFC 49, do the substeps below:
- (a) On ELEC power control panel assembly, set BATT switch to ON.
- (b) Observe U BATT and E BATT caution lights on caution light indicator panel.
  - (c) If lights are on, charge battery (A1-F18AC-PCM-000).
- (d) If lights are not ON, set BATT switch to OFF and troubleshoot canopy actuation electrical circuit (A1-F18AC-120-200, WP011 00 or WP012 00).
- (2) On 161702 AND UP and 161353 THRU 161528 AFTER AFC 49, do substeps below:
- (a) On ELEC power control panel assembly, set BATT switch to ON.

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#### NOTE

E/U BATT voltmeter provides a visual readout of the emergency and utility batteries. Voltage is indicated in 1 volt increments from 16 to 20 volts, and 2 volt increments from 20 to 30 volts.

- (b) Observe E/U BATT voltmeter on ELEC power control panel assembly.
- (c) If voltage indication on E/U BATT voltmeter is below 23.5 volts, do BATTERY TEST (A1-F18AC-420-200, WP004 02).
- (d) If voltage indication on E/U BATT voltmeter is above 23.5 volts, set BATT switch to OFF and troubleshoot canopy actuation electrical circuit (A1-F18AC-120-200, F/A-18A AND F/A-18C 163427 THRU 164067 WP011 00, F/A-18B AND F/A-18D, 163434 THRU 164068 WP012 00; OR A1-F18AE-120-200, F/A-18C 164197 AND UP WP009 00, F/A-18D 164196 AND UP WP010 00).

### 11. Manual Opening.



To prevent damage to canopy, make sure door 96 is completely installed or removed.

- a. Insert a 3/8-inch drive tool into canopy external manual opening receptacle (figure 2).
- b. On F/A-18A AND F/A-18C, rotate receptacle 35  $\pm 1$  turns counterclockwise to unlock and fully open canopy.

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c. On F/A-18B AND F/A-18D, rotate receptacle 112  $\pm 1$  turns counterclockwise to unlock and fully open canopy.

d. Remove tool from receptacle.

WARNING

To prevent death or injury from firing cartridges, make sure SAFE/ARMED handle is up in SAFE position, and ejection control handle and canopy jettison ground safety pins are installed.

e. Before entering cockpit, make sure ejection seat SAFE/ARMED handle is up in SAFE position, ejection control handle and canopy jettison ground safety pins are installed (A1-F18AC-PCM-000).

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12. Electrical Closing.

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# **WARNING**

To prevent injury to personnel or damage to aircraft, inspect canopy sills and dorsal deck for foreign objects before closing canopy.

#### NOTE

As a result of reduced battery capacity at low temperatures, the canopy should not be operated using battery power when ambient temperature is below 0°F.

- a. Inspect canopy sills and dorsal deck for foreign objects before closing canopy.
  - b. Open door 9 (figure 2) (A1-F18AC-LMM-010).
- c. Set and hold external canopy control switch (inside door 9) to CLOSE until canopy is fully closed and locked, then release.
  - d. Close door 9 (A1-F18AC-LMM-010).
- e. If canopy does not close electrically, do paragraph 13, Manual Closing.

### 13. Manual Closing.

a. Insert a 3/8-inch drive tool into canopy external manual opening receptacle (figure 2).

# A1-F18AC-LMM-000 Change 16

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b. On F/A-18A AND F/A-18C, manually close canopy as stated below:



To prevent damage to canopy actuator when the canopy external manual opening receptacle is used to lower the canopy, the canopy must be manually supported at the canopy arch with approximately 75 pounds upward force during lowering until canopy rests on canopy sills.

- (1) Apply approximately 75 pounds upward force at canopy arch and rotate receptacle clockwise, slowly lowering canopy until canopy rests on canopy sills.
  - (2) Release manual force at canopy arch.



To prevent damage to canopy actuator when the canopy external manual opening receptacle is used to close and lock canopy, do not use more than 50 inch-pounds of torque to bottom out actuator internal stops after canopy forward motion stops.

- (3) Continue to rotate receptacle clockwise to fully close and lock canopy, making sure not to apply more than 50 inch-pounds of torque to receptacle after canopy forward motion stops.
- (4) A total of 35  $\pm 1$  turns are required to fully close and lock canopy.

- c. On F/A-18B AND F/A-18D, rotate receptacle 112  $\pm 1$  turns clockwise to fully close and lock canopy.
  - d. Remove tool from receptacle.

#### 14. INTERNAL.

### 15. Electrical Opening.

#### NOTE

Due to reduced battery capacity at low temperatures, the canopy should not be operated using battery power when ambient temperature is below 0°F.

- a. Set internal canopy control switch (figure 2) to OPEN and release. Switch is magnetically held in OPEN position until canopy fully opens and stops.
- b. If canopy does not open electrically, do paragraph 16, Manual Opening.

### 16. Manual Opening.

- a. Unstow internal manual canopy opening handle (figure 2).
- b. On F/A-18A AND F/A-18C, rotate handle 70  $\pm 1$  turns counterclockwise to fully open canopy.
- c. On F/A-18B AND F/A-18D, rotate handle 224  $\pm 2$  turns counterclockwise to fully open canopy.
  - d. Stow handle.

### 17. Electrical Closing.

# WARNING

To prevent injury to personnel or damage to aircraft, inspect canopy sills and dorsal deck for foreign objects prior to closing canopy.

#### NOTE

Due to reduced battery capacity at low temperatures, the canopy should not be operated using battery power when ambient temperature is below 0°F.

- a. Inspect canopy sills and dorsal deck for foreign objects before closing canopy.
- b. Set and hold internal canopy control switch (figure 2) to CLOSE until canopy is fully closed and locked, then release.
- c. If canopy does not close electrically, do paragraph 18, Manual Closing.

### 18. Manual Closing.

- a. Unstow internal manual canopy opening handle and insert handle into canopy actuator manual drive unit (figure 2).
  - b. On F/A-18A AND F/A-18C, manually close canopy as stated below:

# CAUTION

To prevent damage to canopy actuator when the internal manual canopy opening handle is used to lower the canopy, the canopy must be manually supported at the canopy arch with approximately 75 pounds upward force during lowering until canopy rests on canopy sills.

- (1) Apply approximately 75 pounds upward force at canopy arch and rotate handle clockwise, slowly lowering canopy until canopy rests on canopy sills.
  - (2) Release manual force at canopy arch.
- (3) Continue to rotate handle clockwise to fully close and lock canopy.
- (4) A total of 70  $\pm 1$  turns are required to fully close and lock canopy.
- c. On F/A-18B AND F/A-18D, rotate handle 224  $\pm 2$  turns clockwise to fully close and lock canopy.
  - d. Stow handle.

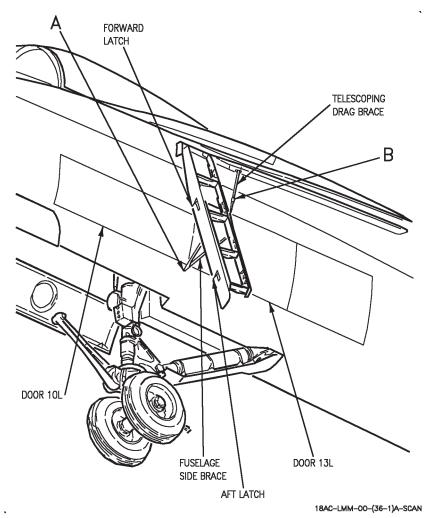
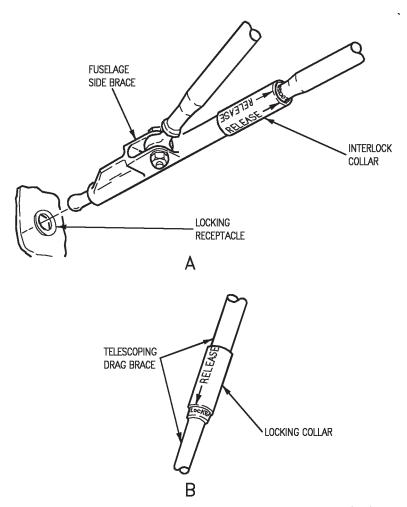


Figure 1. Boarding Ladder Operation (Sheet 1)

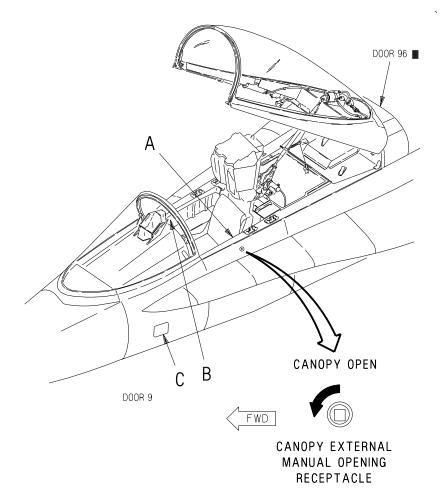


18AC-LMM-00-(36-2)A-SCAN

Figure 1. Boarding Ladder Operation (Sheet 2)

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F/A-18A AND F/A-18C

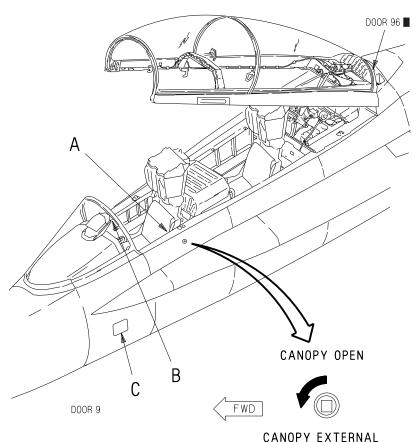
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Figure 2. Canopy Operation (Sheet 1)

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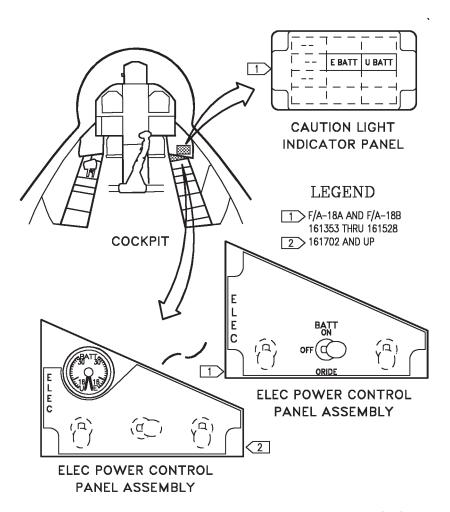


MANUAL OPENING
RECEPTACLE

F/A-18B AND F/A-18D

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Figure 2. Canopy Operation (Sheet 2)



18AC-LMM-00-(35-3)E-SCAN

Figure 2. Canopy Operation (Sheet 3)

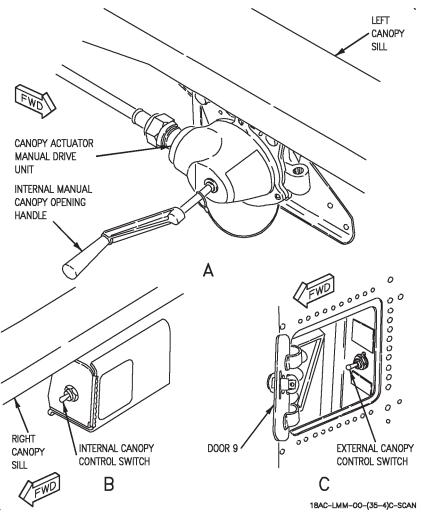


Figure 2. Canopy Operation (Sheet 4)

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#### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **OPENING AND CLOSING - WINDSHIELD**

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000
Seat, Canopy, Survival Equipment	
and Boarding Ladder	A1-F18AC-120-300
Internal CANOPY JETT	
Lever	WP114 00
Windshield Weather Seals	WP117 01
Windshield Pressure Seal	
Assembly	WP119 00
Seat, Canopy, Survival Equipment	
and Boarding Ladder	A1-F18AE-120-300
Internal CANOPY JETT	
Lever	WP013 00
Windshield Weather Seals	WP081 00
Windshield Pressure Seal	
Assembly	WP083 00
Inertial Navigation, and Backup	
Attitude and Navigation Systems	A1-F18AC-740-300

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# Reference Material (Continued)

Master Arm Control Panel	
Assembly (52A-H075)	WP013 00

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# **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 247 PART 2	26 Mar 99	Pre-Night Attack Windshield Panel, Replacement of (ECP NI-00843R1)	1 Aug 00	1

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# **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 247 PART 3	26 Mar 99	Night Attack Windshield Panel, Replacement of (ECP NI-00843R1)	1 Aug 00	-

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# **Support Equipment Required**

Part Number or Type Designation	Nomenclature
74D110054-1001	Aircraft Windshield Panel Support
MS20364-428C	Self-Locking Nut
NAS464P4A14 -	Shipping Bolt Torque Wrench, 0 to 60
-	Inch-Pounds Torque Wrench,
	0 to 150 Inch-Pounds

# **Materials Required**

or Part Number	Nomenclature
CCC-C-440,	Cheesecloth
Type 1 Class 1	
(CAGE 81348)	
MILS81733TY1-2	Sealing Compound
(CAGE 81349)	
DS-108F	Solvent, Wipe
(CAGE 30256)	

### Materials Required (Continued)

Specification or Part Number	Nomenclature
A-A-1586, 3IN. Wide (CAGE 58536)	Tape
-	Stainless Steel Stock (0.032 x 3 Inches x 12 Inches)

### 1. OPENING.

### WARNING

To prevent death or injury from electrical shock, make sure windshield and canopy static charge is discharged.

- a. On 163985 AND UP, do windshield and canopy static charge discharging procedure (if not previously done) (A1-F18AC-PCM-000).
  - b. Open canopy (WP016 00).

# WARNING

To prevent death or injury from firing cartridges, make sure SAFE/ARMED handle is up in SAFE position and ejection control handle and canopy jettison aircraft ground safety pins are installed.

- c. Before entering cockpit, make sure ejection seat SAFE/ARMED handle is up in SAFE position, ejection control handle and canopy jettison aircraft ground safety pins are installed (A1-F18AC-PCM-000).
  - d. Remove internal doors CPAD and CPAE (A1-F18AC-LMM-010).

### WARNING

To prevent death or injury from inadvertent firing of canopy jettison SMDC initiator, shipping bolt and nut must be installed in initiator before removing canopy jettison aircraft ground safety pin for access to bolt, left side.

To prevent death or injury from inadvertent firing of canopy jettison SMDC initiator, extreme caution must be used when disconnecting link from initiator.

With link disconnected and before installation of shipping bolt and nut, initiator is armed.

e. Remove pin (9, figure 1) and attaching parts and carefully disconnect link (8) from canopy jettison SMDC initiator.

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- f. Carefully rotate initiator plunger, as required and install shipping bolt and nut in initiator. (QA)
- g. Remove canopy jettison aircraft ground safety pin (A1-F18AC-PCM-000).
  - h. Remove screws (3), left and right sides.
  - i. Remove doors 24L/R (A1-F18AC-LMM-010).
  - j. Remove bolt (2) and attaching parts, left and right sides.
  - k. Remove bolts (5) and attaching parts, left and right sides.

#### NOTE

On some aircraft, internal CANOPY JETT lever must be removed in order to remove bolt, left side, from canopy sill.

To prevent magnetic interference of STBY COMPASS, screws and attaching parts removed from right windshield aft attach support must be reinstalled in right windshield aft attach support.

- l. Remove bolt (6) and attaching parts, left and right sides.
- m. If required to remove bolt (6), left side, from canopy sill, remove internal CANOPY JETT lever (A1-F18AC-120-300, 161353 THRU 164068 WP114 00; or A1-F18AE-120-300, 164196 AND UP WP013 00).



To prevent damage to fuselage skin, guard must be positioned between windshield anti-ice fairing and fuselage skin.

- n. Position locally manufactured guard (figure 2) on fuselage where windshield anti-ice fairing will contact fuselage, and secure with tape.
- o. Rotate windshield (1, figure 1) up and forward to full length of windshield restraint lanyard.
- p. Manually support windshield (1) and install support (7) as stated below:
  - (1) Remove quick release pins from support (7).
- (2) Position support (7) between windshield and fuselage and install quick release pins.

#### 2. CLOSING.

- a. Inspect windshield sills for foreign objects before lowering windshield (1, figure 1).
  - b. Inspect windshield pressure seal (detail C) as stated below:
    - (1) If configuration V exists, do the substeps below:
      - (a) Inspect windshield pressure seal for damage.

- (b) If no damage exists, rework pressure seal ends to conform to configuration W (A1-F18AC-120-300, 161353 THRU 164068 WP119 00; or A1-F18AE-120-300, 164196 AND UP WP083 00).
- (c) If pressure seal is damaged, remove and replace seal (A1-F18AC-120-300, 161353 THRU 164068 WP119 00; or A1-F18AE-120-300, 164196 AND UP WP083 00).
  - (2) If configuration W exists, do the substeps below:
    - (a) Inspect windshield pressure seal for damage.
- (b) If pressure seal is damaged, remove and replace seal (A1-F18AC-120-300, 161353 THRU 164068 WP119 00; or A1-F18AE-120-300, 164196 AND UP WP083 00).
  - c. Inspect windshield weather seal (detail D) as stated below:
    - (1) If configurations X or Y exists, do the substeps below:
- (a) Remove weather seals (form-in-place) from canopy sills (A1-F18AC-120-300, 161353 THRU 164068 WP117 01; or A1-F18AE-120-300, 164196 AND UP WP081 00).
- (b) Trim and remove bulb seals from windshield anti-ice fairing (A1-F18AC-120-300, 161353 THRU 164068 WP117 01).
- (c) Replace weather seals (form-in-place) on canopy sills (A1-F18AC-120-300, 161353 THRU 164068 WP117 01; or A1-F18AE-120-300, 164196 AND UP WP081 00).
  - (2) If configuration Z exists, do the substeps below:
- (a) Inspect weather seal (form-in-place) under windshield anti-ice fairing for damage.

(b) If weather seal under windshield anti-ice fairing is damaged, remove and replace seal (form-in-place) (A1-F18AC-120-300, 161353 THRU 164068 - WP117 01; or A1-F18AE-120-300, 164196 AND UP - WP081 00).

#### NOTE

When windshield is opened, weather seals (form-in-place) located under doors 24L/R and under windshield aft attach supports, left and right sides, must be removed and replaced (wet installed before closing).

- (c) Remove weather seals from under doors 24L/R and under windshield aft attach supports, left and right sides and reapply seals (wet install form-in-place) (A1-F18AC-120-300, 161353 THRU 164068 WP117 01; or A1-F18AE-120-300, 164196 AND UP WP081 00).
- d. If removed for access to bolt (6), left side, position bolt (6) in canopy sill and reinstall internal CANOPY JETT lever (A1-F18AC-120-300, 161353 THRU 164068 WP114 00; or A1-F18AE-120-300, 164196 AND UP WP013 00).

# CAUTION

To prevent damage to Master Arm Control Panel Assembly wire bundle, slack in wire bundle must be removed before closing windshield.

- e. On 161353 THRU 161523, remove screws from Master Arm Control Panel Assembly and pull panel out, far enough to remove slack from wire bundle (A1-F18AC-740-300, WP013 00).
  - f. Manually support windshield (1) and remove support (7).

#### **NOTE**

To prevent cabin pressure leakage, make sure windshield restraint lanyard lays forward of windshield pressure seal area.

- g. While keeping doors 24L/R clear of windshield (1), rotate windshield to full down position, making sure windshield restraint lanyard lays forward of windshield pressure seal area.
  - h. Remove fuselage guard (figure 2) and tape.
- i. On 161353 THRU 161523, reinstall Master Arm Control Panel Assembly (A1-F18AC-740-300, WP013  $\,$  00).

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#### NOTE

To prevent magnetic interference of STBY COMPASS, bolts and attaching parts removed from right windshield aft attach support must be reinstalled in right windshield aft attach support.

- j. Install bolt (6, figure 1) and attaching parts, left and right sides.
- k. Torque bolt (6) 50 to 70 inch-pounds. (QA)

### WARNING

Solvent may cause eye, skin and respiratory irritation. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- l. Using a clean cloth moistened with solvent, clean sealing compound from under head of bolts (5) and windshield aft attach support, left and right sides.
- m. Using a clean dry cloth, wipe areas dry before solvent evaporates. Allow to air dry for 15 minutes before application of sealant.

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### WARNING

Sealing compound may cause allergic skin reaction. May cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- n. Apply sealing compound under head of bolts (5) and wet install in windshield aft attach support, left and right sides.
  - o. Install bolts (5) and attaching parts, left and right sides.
- p. Torque nuts for bolts (5) 100 to 130 inch-pounds or torque bolt head 180 to 220 inch-pounds. (QA)

### WARNING

Solvent may cause eye, skin and respiratory irritation. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- q. Using a clean cloth, moistened with solvent, clean any excess sealing compound from bolts (5) and windshield aft attach supports.
  - r. Install forward bolts (2) and attaching parts, left and right sides.
  - s. Torque bolts (2) 50 to 70 inch-pounds. (QA)
  - t. Install screws (3), left and right sides.

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Page 12A/(12B blank)

- u. On aircraft with windshield P/N 74A350002-1009, -1011, or -1017 installed, torque screws (3) 50 to 70 inch-pounds. (QA)
- v. On aircraft with windshield P/N 74A350002-1025,271520-57, -61, or -723 installed, torque screws (3) 20 to 25 inch-pounds. (QA)
  - w. Install doors 24L/R (A1-F18AC-LMM-010).

x. Install canopy jettison aircraft ground safety pin (A1-F18AC-PCM-000).

# WARNING

To prevent death or injury from canopy jettison system failure, shipping bolt and nut must be removed from canopy jettison SMDC initiator.

To prevent death or injury from inadvertent firing of canopy jettison SMDC initiator, extreme caution must be used when connecting link to initiator.

With shipping bolt and nut removed and before connecting link to initiator, initiator is armed.

- y. Remove shipping bolt and nut from canopy jettison SMDC initiator. (QA)
- z. Carefully rotate initiator plunger as required to connect link (8) to initiator.
- aa. Connect link (8) to initiator and install pin (9) and attaching parts. (QA)
  - ab. Install internal doors CPAD and CPAE (A1-F18AC-LMM-010).

#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

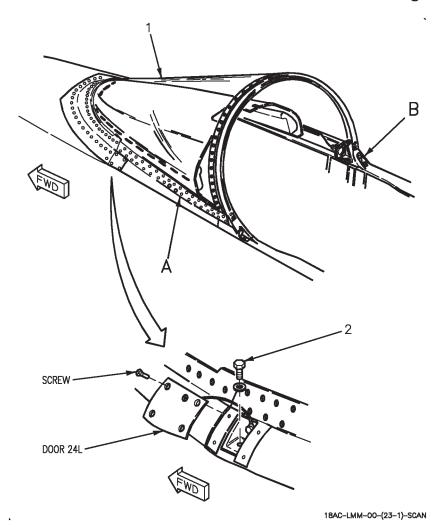
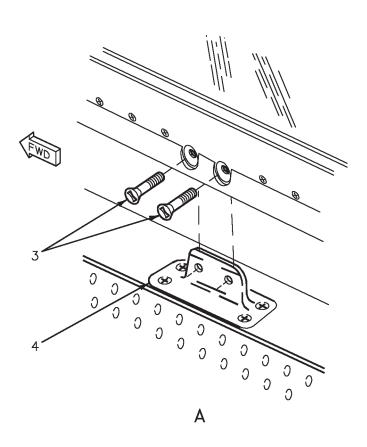
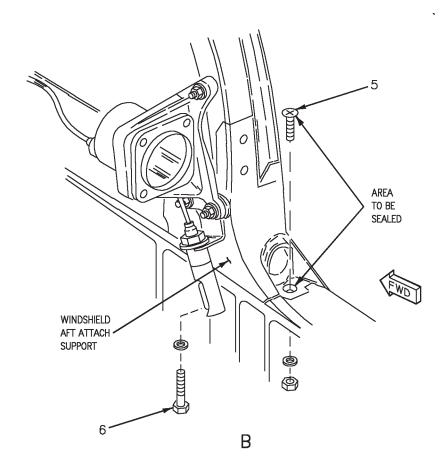


Figure 1. Windshield (Sheet 1)



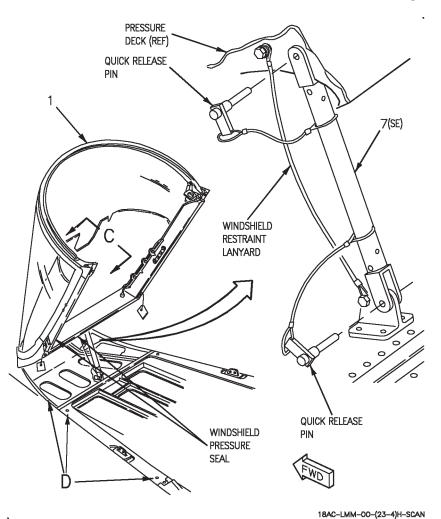
18AC-LMM-00-(23-2)H-SCAN

Figure 1. Windshield (Sheet 2)



18AC-LMM-00-(23-3)H-SCAN

Figure 1. Windshield (Sheet 3)



Windolaid (Chast 4)

Figure 1. Windshield (Sheet 4)

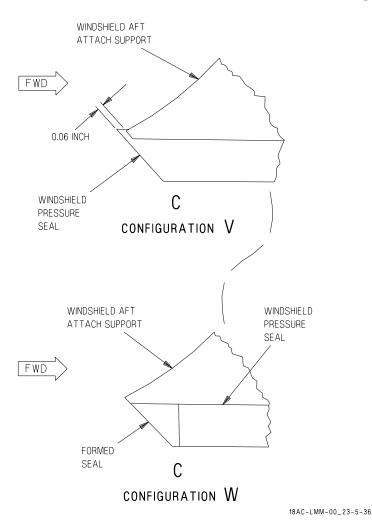
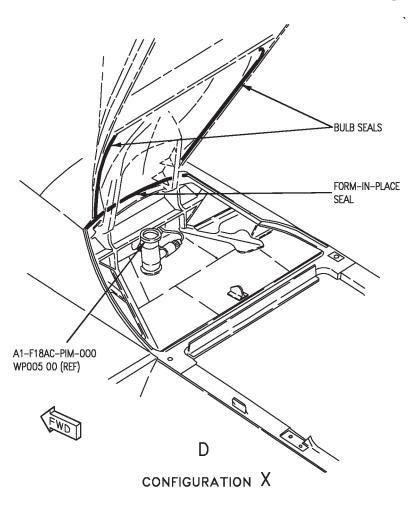
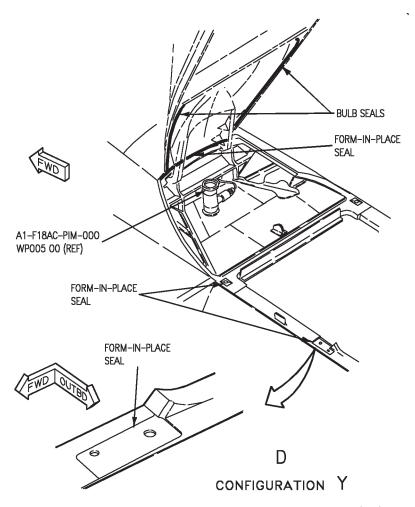


Figure 1. Windshield (Sheet 5)



18AC-LMM-00-(23-6)G-SCAN

Figure 1. Windshield (Sheet 6)



18AC-LMM-00-(23-7)G-SCAN

Figure 1. Windshield (Sheet 7)

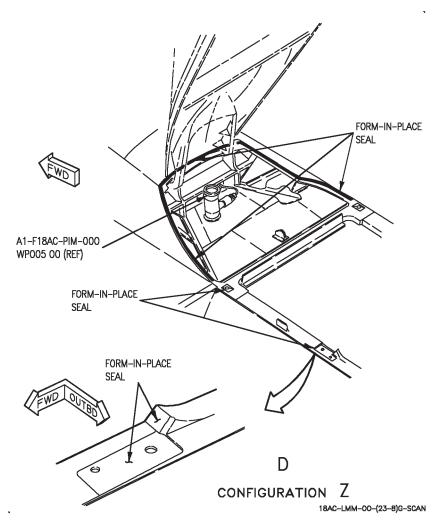
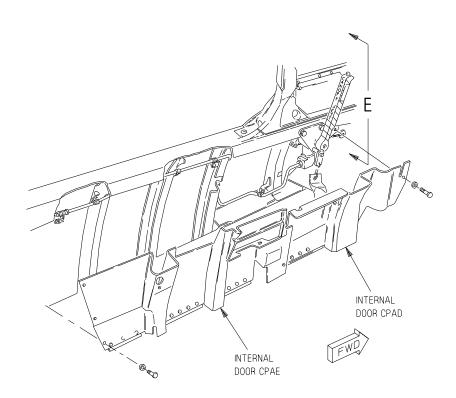


Figure 1. Windshield (Sheet 8)



18AC-LMM-00\_23-9-36

Figure 1. Windshield (Sheet 9)

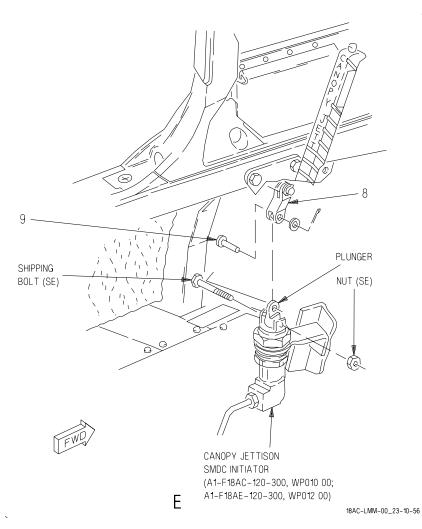


Figure 1. Windshield (Sheet 10)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1	271520-723 ¶	WINDSHIELD	1	E*	PAOOD
	271520-61 ¶	SEE ABOVE	1	E*	PAOOD
	74A350002-1025 ¶	. SEE ABOVE	1	C	PAOOD
	74A350002-1017	. SEE ABOVE	1	В	PAOOD
	271520-57	. SEE ABOVE	1	D	PAOOD
	74A350002-1011	SEE ABOVE	1	A*	PAOOD
	74A350002-1009	. SEE ABOVE	1	A*	PAOOD
2	VS3207-4-10	. BOLT, CLOSE TOLERANCE (92215) (MCDONNELL SPEC ST3M731-4-10)	2	*	PAOZZ
	SC2663-4-10	. SEE ABOVE (06950)	2	*	PAOZZ
	PBF1264-4-10	. SEE ABOVE (27624)	2	*	PAOZZ
	111364-4-10	. SEE ABOVE (K5673)	2	*	PAOZZ
	MB251-4-10	. SEE ABOVE (73197)	2	*	PAOZZ
	80165-4-10	. SEE ABOVE (OPTK6)	2	*	PAOZZ
	NAS1149C0432R	. WASHER (USE WITH INDEX 2)	2	*	PAOZZ
	AN960C416L	. SEE ABOVE	2	*	PAOZZ
3	NAS664V18HT \$	. SCREW (80205)	4		PAOZZ
	TX1026V4-18A ¢	. SCREW (06725)	4		PAOZZ
4	171576-01	. SUPPORT, WINDSHIELD, CENTER (76301) (REPLACES 24A350610-2001	2	F	PAOZZ
	74A350610-2001	. SEE ABOVE (REPLACED BY 171576-01)	2	G	PAOZZ
	74A350610-2003 ¢	. SEE ABOVE	2		PAOZZ

Figure 1. Windshield (Sheet 11)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
5	ST3M733-5L11 \$	. BOLT, COUNTERSUNK (76301)	2		PAOZZ
	3M1169D5-11A ¢	. BOLT, TENSION HEAD (76301)	2		PAOZZ
	NAS1149C0563R	. WASHER (USE WITH INDEX 5)	2	*	PAOZZ
	AN960C516	. SEE ABOVE	2	*	PAOZZ
	NAS1291C5M	. NUT (USE WITH INDEX 5)	2		PAOZZ
6	ST3M731-4-19 \$	. BOLT, CLOSE TOLERANCE (76301) (RIGHT SIDE)	1		PAOZZ
	NAS6704U19 ¢	. BOLT (80205) (RIGHT SIDE)	1		PAOZZ
	MS20004-18	. BOLT (96906) (LEFT SIDE)	1		PAOZZ
	NAS1149C0432R	. WASHER (USE WITH INDEX 6) (RIGHT SIDE)	1	*	PAOZZ
	AN960C416L	. SEE ABOVE	1	*	PAOZZ
	MS20002C4	. WASHER (96906) (USE WITH INDEX 6) (LEFT SIDE)	1		PAOZZ
	ST3M475C4	. RETAINER, NUT AND BOLT (76301) (USE WITH INDEX 6) (RIGHT SIDE)	1	*	PAOZZ
	NAS578-4A	. RETAINER (80205)	1		PAOZZ
	ST3M441-4M	. NUT, SELF-LOCKING, BARREL (15653) (USE WITH INDEX 6) (RIGHT SIDE)	1	*	PAOZZ
	ST3M738-4	. NUT, SELF-LOCKING	1	*	PAOZZ
7	74D110054 - 1001	. SUPPORT - WINDSHIELD PANEL, AIRCRAFT (76301) (SUPPORT EQUIPMENT)	1		PEOZZ
8	74A800301 - 2007 †	. LINK (76301)	1		XBOZZ
	74A800301 - 2005 @	. SEE ABOVE	1		XBOZZ
	74A800301 - 2003 +	. SEE ABOVE	1	*	XBOZZ
	74A800301 - 2001 +	. SEE ABOVE	1	*	XBOZZ
9	3M39C2-13 †	. PIN, STRAIGHT, HEADED	1		PAOZZ
	3M39C2-11 @	. SEE ABOVE	1		PAOZZ
	3M39C1-11 +	. SEE ABOVE	1		PAOZZ
	NAS1149D0316J ††	. WASHER (USE WITH INDEX 9)	2	*	PAOZZ
	AN960JD10LL ††	. SEE ABOVE	2	*	PAOZZ
	NAS1149DN632J	. WASHER (USE WITH INDEX 9)	1	*	PAOZZ

Figure 1. Windshield (Sheet 12)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
	AN960JD6 MS24665-151	. SEE ABOVE	1	*	PAOZZ PAOZZ

- @ PARTS WITH THIS SYMBOL MUST BE USED TOGETHER.
- + PARTS WITH THIS SYMBOL MUST BE USED TOGETHER.

Figure 1. Windshield (Sheet 13)

<sup>\*</sup> ALTERNATE OR EQUIVALENT PARTS. (WP002 00)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
--------------	-------------	----------------------------------	----------------------	-------------------	--------------

- † PARTS WITH THIS SYMBOL MUST BE USED TOGETHER.
- †† USE WITH 74A800301-2005 OR 74A800301-2007.
- \$ PARTS WITH THIS SYMBOL MUST BE USED WITH 74A350002-1017, 74A350002-1011, 74A350002-1009, 271520-57, 271520-61, AND 271520-723
- ¶ PARTS WITH THIS SYMBOL ARE INTERCHANGEABLE PARTS
- ¢ PARTS WITH THIS SYMBOL MUST BE USED WITH 74A350002-1025

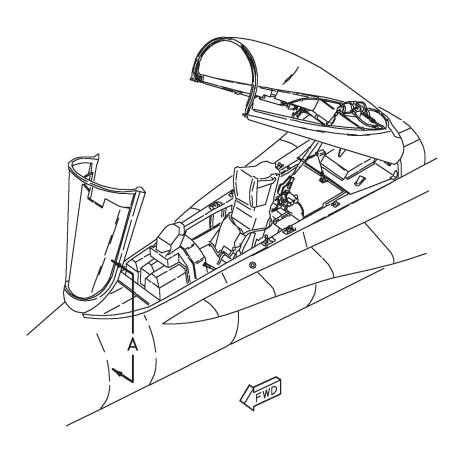
Figure 1. Windshield (Sheet 14)

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INDEX NO.	PART NUMBER	1 2 3 4	DESCRIPTION 5 6 7		UNITS PER ASSY	USE ON CODE	SM&R CODE
		CODE	USABLE ON	MO	DEL		
		A	161353 THRU 163782 BEFORE F/A-18 AFC 247 PART 2	F/A-	18A/B/C/D	•	
		В	163985 THRU 165182 BEFORE F/A-18 AFC 247 PART 3	F/A-	18C/D		
		С	165183 AND UP	F/A-	18C/D		
		D	161353 THRU 163782 AFTER F/A-18 AFC 247 PART 2	F/A-	18A/B/C/D	•	
		E	163985 THRU 165182 AFTER F/A-18 AFC 247 PART 3	F/A-	18C/D		
		F	AFTER F/A-18 AFC-247 PART 2 WITH 271520-57 INSTALLED AND AFTER F/A-18 AFC-247 PART 3 WITH 271520-61 AND 271520-723 INSTALLED	F/A-	18A/B/C/D		
		G	BEFORE F/A-18 AFC-247 PART 3 WITH 74A350002-1017 INSTALLED AND BEFORE F/A-18 AFC-247 PART 2 WITH 74A350002-1009, AND 74A350002-1011 INSTALLED	F/A-	18C/D		

Figure 1. Windshield (Sheet 14)

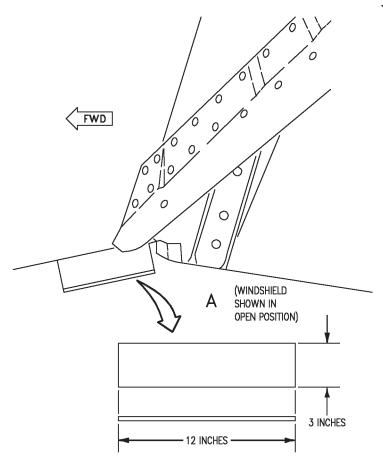


18AC-LMM-00-(89-1)-SCAN

Figure 2. Fuselage Guard (Sheet 1)

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LOCAL MANUFACTURE USING 0.032 STAINLESS STEEL STOCK

18AC-LMM-00-(89-2)-SCAN

Figure 2. Fuselage Guard (Sheet 2)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### PREPARATION FOR OPERATION - APU AND ENGINE

### **Reference Material**

General Aircraft Information	A1-F18AC-GAI-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

### **Alphabetical Index**

Subject	Page No.
Aircraft Preparation	3
Cockpit Setup	15
Materials Required	2
Operation	21
Support Equipment Required	2

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Page 2

### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Alternating Current Bus Isolation (ECP MDA-F/A-18- 00121)	1 Dec 85	-
F/A-18 AFC 114	-	Laser Target Designator/Ranger (LTD/R), Incorporation of (ECP MDA-F/A-18-00176C2)	15 Mar 94	-

### **Support Equipment Required**

None

**Materials Required** 

None

#### 1. AIRCRAFT PREPARATION.

- a. Review aircraft status.
- b. If engine is to be operated above 80  $\%~N_2$  rpm, install runup holdback (WP019  $\,$  00).
  - c. Be sure wheel chocks are installed.

#### NOTE

Maintenance code 988 indicates fire extinguisher low.

- d. Verify fire extinguisher condition by doing fluids test of nose wheelwell digital display indicator (NWWDDI) (WP003  $\,$ 00).
  - e. Clear and test NWWDDI (WP003 00).
  - f. Do walkaround inspection.

# CAUTION

To prevent FOD to engine, be sure access doors forward of engine inlet ducts are closed.

#### NOTE

Substeps starting with (ENGINE) may be omitted if engine will not be started. Substeps starting with (ECS) may be omitted if ECS will not be operated. Substeps starting with (DAILY) may be omitted if daily inspection is valid.

(1) (ENGINE) Remove left engine inlet cover (A1-F18AC-PCM-000).



To prevent overheat condition at heat exchangers, both ram air inlet covers must be removed.

(2) (ENGINE) (ECS) Remove left ram air inlet cover (A1-F18AC-PCM-000).



Move through duct carefully, to prevent damage to vortex generators on lower surface midway down duct.

- (3) (ENGINE) Enter left inlet duct:
  - (a) Inspect vortex generators for damage.
  - (b) Inspect ice detector probe for damage.
  - (c) Inspect visible fan stages for FOD.
- (d) Inspect  $T_1$  transmitter probe for damage and obstructions.
  - (e) Be sure no FOD or foreign objects are in area.



To prevent engine damage, inspect engine ground runup screens thoroughly for torn netting, broken or cracked framing, and loose parts. Be sure runup screens are mounted correctly.

- (4) (ENGINE) Install left engine ground runup screen (A1-F18AC-PCM-000).
- (5) (ENGINE) Remove left inlet bleed air exit duct plug (A1-F18AC-PCM-000).

- (6) (ENGINE) Remove left inlet bleed air exit door plug (A1-F18AC-PCM-000).
- $\left(7\right)$  (ENGINE) (ECS) Remove left ram air outlet cover (A1-F18AC-PCM-000).
- (8) (ENGINE) Remove left engine B-sump vent plug (A1-F18AC-PCM-000).
- (9) (ENGINE) Remove left engine bay vent cover (A1-F18AC-PCM-000).
- (10) (ENGINE) Remove right engine bay vent cover (A1-F18AC-PCM-000).
- (11) (ENGINE) Remove right engine B-sump vent plug (A1-F18AC-PCM-000).
- (12) (ENGINE) (ECS) Remove right ram air outlet cover (A1-F18AC-PCM-000).
- (13) (ENGINE) Remove right inlet bleed air exit door plug (A1-F18AC-PCM-000).
- (14) (ENGINE) Remove right inlet bleed air exit duct plug (A1-F18AC-PCM-000).



To prevent fuel being ingested by engine(s) be sure external Aircraft Fuel Tank FPU-8/A filler cap is installed securely.

(15) If left external Aircraft Fuel Tank FPU-8/A is installed, be sure filler cap is installed securely. (QA)



To prevent FOD to engines, when electrically grounding aircraft use receptacles located in main landing gear (MLG) wheelwells.

- (16) If required, electrically ground aircraft using MLG wheelwell receptacle (A1-F18AC-PCM-000).
- (17) On door 56L, inspect hydraulic system 1 (HS-1) fluid level indicator. Fluid level should be in or above the green area.
- (18) Be sure left MLG ground safety pin is installed (A1-F18AC-PCM-000).
- (19) In left MLG wheelwell, inspect HS-1 hydraulic filter  $\Delta P$  indicator.
- $\left(20\right)$  In left MLG wheelwell, inspect engine fuel shutoff arm and make sure arm is in the OPEN position.

- (21) (DAILY) Inspect APU intake on door 52 for obstructions or FOD. While looking through intake screen:
  - (a) Inspect APU oil filter  $\Delta P$  indicator.
  - (b) Inspect APU sight glass for correct oil servicing.
  - (c) Inspect APU fuel filter  $\Delta P$  indicator.
  - (d) Inspect for leaks.
- (22) (DAILY) Inspect air turbine starter exhaust outlet on door 53L for obstructions.
  - (23) (DAILY) Open door 54L (A1-F18AC-LMM-010):
    - (a) Inspect AMAD oil filter  $\Delta P$  indicator.
    - (b) Inspect AMAD oil level indicator for correct oil servicing.
    - (c) Inspect for leaks.
- (d) Make sure AMAD decoupler handle is in the stowed position, rotated fully counterclockwise, to prevent AMAD being electrically decoupled.
  - (e) Close door 54L (A1-F18AC-LMM-010).

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## WARNING

To prevent personnel injury, if engine is operated with door 64 L or R open, remain clear of power transmission shaft (PTS).



To prevent heat damage, door 68 L or R must be closed during APU operation. Door 68 L or R may be opened after APU has been secured.

To prevent overstress of airframe, position engine bay doors per below conditions:

Symmetrical engine run-up - all doors may be open as long as APU is secured.

Asymmetrical engine run-up - one engine off or at idle and the other at 80 %  $\,N_2$  rpm or above, door 64 L or R must be closed on idle engine side.

To prevent overheating engine compartment, door 65 L and/or R must be open for ground operation.

To prevent damage to flaps, make sure flap locks are not installed and doors 64 L and R are closed.

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To prevent damage to fuselage formers if stabilator is to be operated, doors 68 L and/or R must be closed, top row of fasteners installed and lockset assemblies secured.

To prevent damage to stabilator, if doors 68 and 74 L and/or R are closed, be sure all top row fasteners and door 167 L or R and/or 166 L or R are secured.

To prevent damage to stabilator position support, be sure stabilator position support is not installed during run-up.

- (24) (ENGINE) Open door 65L (A1-F18AC-LMM-010):
  - (a) (DAILY) Inspect engine oil filter  $\Delta P$  indicator.
  - (b) Inspect oil tank oil level indicator for correct servicing.
  - (c) (DAILY) Inspect VEN power unit filter  $\Delta P$  indicator.
  - (d) Inspect VEN oil level indicator for correct servicing.
  - (e) Inspect for leaks.
- (25) (DAILY) Inspect APU exhaust outlet on door 66 for obstructions.
  - (26) (ENGINE) Open door 69L (A1-F18AC-LMM-010):
    - (a) (DAILY) Inspect engine fuel filter  $\Delta P$  indicators.

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- (b) Inspect for leaks.
- (c) Close door 69L (A1-F18AC-LMM-010).

 $(27)\,$  (ENGINE) Remove left tailpipe cover (A1-F18AC-PCM-000).

# CAUTION

To prevent damage to afterburner liner do not enter engine exhaust.

- (28) (ENGINE) Inspect left afterburner duct, nozzle and turbine for damage (A1-F18AC-270-300).
- (29) (ENGINE) Remove right tailpipe cover (A1-F18AC-PCM-000).
- $(30)\,$  (ENGINE) Inspect right afterburner duct, nozzle and turbine for damage (A1-F18AC-270-300).
  - (31) (ENGINE) Open door 69R (A1-F18AC-LMM-010):
    - (a) (DAILY) Inspect engine fuel filter  $\Delta P$  indicators.
    - (b) Inspect for leaks.
    - (c) Close door 69R (A1-F18AC-LMM-010).
  - (32) (ENGINE) Open door 65R (A1-F18AC-LMM-010):
    - (a) (DAILY) Inspect engine oil filter  $\Delta P$  indicator.
    - (b) Inspect oil tank oil level indicator for correct servicing.
    - (c) (DAILY) Inspect VEN power unit filter  $\Delta P$  indicator.
    - (d) Inspect VEN oil level indicator for correct servicing.
    - (e) Inspect for leaks.

- (33) (DAILY) Open door 54R (A1-F18AC-LMM-010):
  - (a) Inspect AMAD oil filter  $\Delta P$  indicator.
  - (b) Inspect AMAD oil level indicator for correct oil servicing.
  - (c) Inspect for leaks.
  - (d) Close door 54R (A1-F18AC-LMM-010).
- (34) (DAILY) Inspect air turbine starter exhaust outlet on door 53R for obstructions.
- (35) Be sure right MLG ground safety pin is installed (A1-F18AC-PCM-000).
- (36) In right MLG wheelwell inspect hydraulic system 2 (HS-2) hydraulic filter  $\Delta P$  indicator.
- (37) In right MLG wheelwell, inspect engine fuel shutoff arm and make sure arm is in the OPEN position.
- (38) Inspect APU accumulator hydraulic pressure and temperature gages through windows in right MLG wheelwell. Service APU accumulator (A1-F18AC-PCM-000) if under minimums below:
  - (a) Below  $-20^{\circ}$ F and 2900 psi.
  - (b) -20°F to 100°F and below 2650 psi.
  - (c) Above 100°F and below 2900 psi.
- $(39)\,$  On door 56R inspect HS-2 fluid level indicator. Fluid level should be in or above the green area.

- (40) If centerline external Aircraft Fuel Tank FPU-8/A is installed, be sure filler cap is installed securely. (QA)
- (41) (ENGINE) Remove laser spot tracker dome cover (A1-F18AC-PCM-000).
- (42) If right external Aircraft Fuel Tank FPU-8/A is installed, be sure filler cap is installed securely. (QA)
- (43) (ENGINE) Remove right engine air inlet cover (A1-F18AC-PCM-000).
- $(44)\,$  (ENGINE) (ECS) Remove right ram air inlet cover (A1-F18AC-PCM-000).



Move through duct carefully, to prevent damage to vortex generators on lower surface midway down duct.

- (45) (ENGINE) Enter right inlet duct.
  - (a) Inspect vortex generators for damage.
  - (b) Inspect visible fan stages for FOD.
- (c) Inspect  $T_1$  transmitter probe for damage and obstructions.
  - (d) Be sure no FOD or foreign objects are in area.

# CAUTION

To prevent engine damage, inspect engine ground runup screens thoroughly for torn netting, broken or cracked framing, and loose parts. Be sure runup screens are mounted correctly.

- $(46)\,$  (ENGINE) Install right engine ground runup screen (A1-F18AC-PCM-000).
- (47) Be sure NLG ground safety pin is installed (A1-F18AC-PCM-000).
- $(48)\,$  Inspect EMER BRAKE accumulator servicing. Service if under 2900 psi (WP033  $\,00).$ 
  - (49) Open door 8 (A1-F18AC-LMM-010).
- (a) Connect intercommunications equipment in door 8 (WP012 00). Do not apply electrical power.
  - g. Be sure aircraft has a minimum of 2000 lb. of fuel.
  - h. Station ground observer and fire guard.

2. COCKPIT SETUP.

### **WARNING**

To prevent injury to personnel, be sure canopy and ejection seat safeties are installed.

a. Make sure canopy and ejection seat safeties are installed (A1-F18AC-PCM-000).

#### NOTE

For cockpit switch locations, refer to A1-F18AC-GAI-000, WP004 00.

- b. Set cockpit controls and switches per substeps below:
  - (1) Connect intercommunications equipment (WP012 00).
  - (2) MC/HYD ISOL control panel assembly

MC switch - NORM HYD ISOL switch - NORM

(3) Pilot services control panel assembly

On 161353 THRU 164068, OXYGEN ON/OFF valve - OFF On 164196 AND UP, OBOGS control switch - OFF OXY FLOW control valve - OFF

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(4) ANT SEL control panel assembly

ANT SEL - COMM 1 switch - AUTO ANT SEL - IFF switch - BOTH On F/A-18B AND F/A-18D, RADIO ORIDE/HOT MIC/COLD MIC switch - HOT MIC

(5) Intercommunication Amplifier-Control

COMM

RLY mode switch - OFF G XMT switch - OFF

ILS

UFC/MAN switch - UFC

IFF

CRYPTO switch - NORM MODE 4 switch - OFF MASTER switch - NORM ICS VOL control - as required

(6) APU control panel

APU control switch - OFF ENG CRANK switch - OFF

(7) FUEL system control panel

PROBE control switch - RETRACT EXT TANKS WING switch - NORM CTR switch - NORM DUMP switch - OFF

(8) EXT LT control panel assembly

FORMATION lights dimmer control - OFF POSITION lights dimmer control - 1/2 turn clockwise STROBE lights switch - DIM INTR WING switch - NORM

(9) Throttle quadrant

L and R throttle - OFF Friction lever - aft

(10) 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48,

GEN TIE CONTROL panel assembly

GEN TIE CONTROL switch - NORM

(11) GND PWR control panel assembly

1 switch - AUTO

2 switch - AUTO

3 switch - AUTO

4 switch - AUTO

EXT PWR switch - NORM

(12) EMERG BRK/PARK BRK control - rotate CCW 90° and pull to set parking brake.

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(13) LH vertical console control panel

LAUNCH BAR control switch - RETRACT FLAP switch - HALF SELECT JETT switch - SAFE LDG/TAXI LIGHT switch - OFF ANTI SKID switch - OFF (afloat) ANTI SKID switch - ON (ashore)

- (14) LDG GEAR control handle DN
- (15) Master arm control panel assembly

MASTER switch - SAFE

(16) Left Digital Display Indicator (DDI)

Power switch - OFF

(17) LH advisory and threat warning indicator panel

Left engine FIRE warning light-not pressed in (no barber pole showing)

(18) Electronic Equipment Control C-10380/ASQ for 161353 THRU 163782 or C-11919/ASQ 163985 AND UP.

ADF switch - OFF COMM 1 VOL control - as required

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(19) Head-up Display Unit AN/AVQ-28 for 161353 THRU 163782 or AN/AVQ-32 for 163985 AND UP.

HUD SYM - BRT control - OFF AOA INDEXER control - DIM

(20) Horizontal Indicator IP-1350/A for 161353 THRU 163782

OFF/NIGHT/DAY switch - OFF

(21) Multipurpose Color Display for 163985 AND UP

OFF/NGT switch - OFF

(22) ECM control panel assembly

DISPENSER select switch - OFF ECM mode switch - OFF

(23) RH advisory and threat warning indicator panel

APU FIRE warning light - not pressed in (no barber pole showing) Right engine FIRE warning light-not pressed in (no barber pole showing)

(24) Right Digital Display Indicator (DDI)

Power switch - OFF

(25) Map gain control panel assembly

IR COOL switch - OFF

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- (26) Arresting HOOK control handle agrees with hook position
- (27) WING FOLD control handle agrees with wing position
- (28) FCS COOL switch NORM
- (29) ELEC power control panel assembly

L GEN control switch - NORM BATT switch - OFF R GEN control switch - NORM

(30) ECS panel assembly

ECS MODE switch - AUTO
SUIT/CABIN TEMP control - mid range
CABIN PRESS switch - NORM
ANTI-ICE
PITOT switch - AUTO
ENG switch - OFF
BLEED AIR switch - NORM AND DOWN

(31) INTR LT control box panel assembly

Switches - as required

(32) DEFOG control assembly

Lever - LOW WINDSHIELD ANTI ICE/RAIN removal switch - OFF

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(33) SNSR pod control box panel assembly

FLIR switch - OFF RADAR switch - OFF INS mode switch - OFF 163427 AND UP: LTD/R switch - SAFE 161353 THRU 163782: LST/CAM switch - OFF 163985 AND UP: LST/NFLR switch - OFF

(34) KY-58 control panel assembly

OFF/ON/TD control - OFF

### 3. OPERATION.

- a. Start APU, if required (WP021 00).
- b. Start engine(s), if required (WP022 00).

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### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **FUEL LEAK TEST**

### **Reference Material**

Aircraft Fuel Cells and Internal tanks	NAVAIR 01-1A-35
Line Maintenance Procedures	A1-F18AC-LMM-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Alphabetical Index	
Subject	Page No.

### **Record of Applicable Technical Directives**

Fuel Leak Test.....

None

### **Support Equipment Required**

Part Number or Type Designation

**Nomenclature** 

64A90F1

Compressor Power Unit

### **Materials Required**

None

### 1. FUEL LEAK TEST.

# WARNING

Operation of the APU or engine to test for fuel plumbing leaks; other than dynamic APU or engine fuel leaks, is not approved. Testing must be done in sequence listed below until leak is detected.

- a. Do VISUAL INSPECTION, this WP. (engines not motoring or running).
- b. Do MOTORING ENGINE, this WP (throttle OFF) using external air and external electrical power.
  - c. Do RUNING ENGINE, this WP. (started with external air).

#### 2. VISUAL INSPECTION.

- a. Refer to NAVAIR 01-1A-35 for leak source analysis information. This information can be an aid in locating the source of a leak when used in conjunction with this procedure.
- b. Remove or open all doors (A1-F18AC-LMM-010) from area where fuel is leaking.
- c. Visually inspect components for leak. If leak cannot be detected while fuel system is static do substeps below:
- (1) If fuel leak is located in the forward fuselage, forward or aft center fuselage, refuel aircraft (A1-F18AC-PCM-000) and inspect for leak.
- (2) If fuel leak is located in the AMAD, APU, MLG wheelwells, or engine area, continue to MOTORING ENGINE, this WP.
- (3) If APU has a dynamic fuel leak, operate APU (WP021 00) and immediately inspect for leaks.

#### 3. MOTORING ENGINE.

- a. Prepare aircraft for engine operation (WP022 00).
- b. Apply external electrical power (WP004 00).



To prevent engine from accidentally starting during motoring procedure, make sure throttles are locked in OFF position.

- c. Hold both throttles in the OFF position and move throttle friction lock forward to apply full friction.
- d. Connect air supply hose from compressor power unit to air connection in right MLG wheelwell.
  - e. Start compressor power unit.
  - f. Set output air switch to 5:1.

# WARNING

To prevent ATS failure, maximum engine motoring time is 10 minutes with 5 minute cooling period between motoring.

- g. On APU control panel, set ENG CRANK switch to L or R.
- h. While engine is motoring, visually inspect components to determine leak source. If leak cannot be be detected within 3 minutes, continue to RUNNING ENGINE, this WP.
  - i. On APU control panel, set ENG CRANK switch to OFF.
  - j. Shut down compressor power unit.

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- k. Remove external electrical power (WP004 00).
- 1. Disconnect air supply hose from aircraft.
- m. Install dust cover on air connection in right MLG wheelwell.

### 4. RUNNING ENGINE.

- a. Start left or right engine, with external air (WP022 00), and immediately inspect components to determine leak source.
  - b. Shut down engine (WP022 00).

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### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

### **OPERATION - INTEGRATED FUEL-ENGINE INDICATOR ID-2389()**

EFFECTIVITY: F/A-18C AND F/A-18D

### **Reference Material**

Fault Reporting Manual	A1-F18AE-FRM-000
Nose Wheelwell DDI	
Maintenance Code Listing	WP003 00

### **Alphabetical Index**

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# 018 02

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Support Equipment Required	2
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### **Record of Applicable Technical Directives**

None

### **System Required Components**

Signal Data Computer CP-1726/ASQ-194

### **Support Equipment Required**

None

### **Materials Required**

None

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1. OPERATION.

#### 2. NORMAL MODE.

#### NOTE

Operation of Integrated Fuel-Engine Indicator ID-2389() (IFEI), except during engine start and operation, requires application of electrical power.

For cockpit switch locations, refer to A1-F18AC-GAI-000, WP004 00.

- a. If engine is not to be operated, apply electrical power (WP004 00).
- 3. **Engine Displays.** Engine displays do not require operator action.
- a. The displays are for L (left) and R (right) engines in five lines as listed below:

RPM	$N_2$ revolutions per minute in	
	percent	
TEMP	Exhaust gas temperature in	
	degrees Celsius	
FF X100	Fuel flow in pounds per hour	-
NOZ	Nozzle position in percent	
	open in 10% increments	
OIL	Oil pressure in pounds per	
	square inch differential in 5	
	psid increments	

- b. If engine is to be operated with only battery power applied, only RPM and TEMP lines will show until APU is operating or a generator comes on line.
- 4. Fuel Displays. The fuel displays are in three lines.
- a. The upper fuel display line shows total fuel on board (T) in pounds in 10 pound increments.
- b. The middle fuel display line shows internal fuel (I) in pounds in 10 pound increments.
- c. The bottom fuel display line (BINGO) shows the bingo value in pounds in 100 pound increments.
- d. To view individual tank quantities, press QTY pushbutton. Each actuation of QTY pushbutton will result in display as listed below. BINGO will be blanked and BINGO line will display total fuel on board in 100 pound increments.

Page	5
. ~5~	_

QTY Actuation	Upper Display	Middle Display
1st 2nd 3rd 4th 5th 6th	FL (left feed tank) TL (tank 1) WL (left wing tank) XL (left external tank) C (centerline external tank) T (total)	FR (right feed tank) TR (tank 4) WR (right wing tank) XR (right external tank) - I (internal)

- e. To increase BINGO value, press increment (up arrow) pushbutton.
- f. To reduce BINGO value, press decrement (down arrow) pushbutton.
- 5. **Time Displays.** The time displays are in two lines.
- a. The upper time display line shows local or zulu  $(\mathbf{Z})$  time as selected by the ZONE pushbutton.
- b. The bottom time display line shows elapsed time and is controlled by the ET pushbutton per substeps below.
  - (1) First momentary actuation starts elapsed time running.
- (2) Second momentary actuation freezes display, timing continues.
  - (3) Third momentary actuation returns display to elapsed time.
  - (4) Subsequent momentary actuations repeat (2) and (3).

- (5) Pressing and holding ET pushbutton for more than 2 seconds will stop elapsed time and reset to zero.
- 6. If maintenance mode or time set mode will not be done, and if electrical power was applied, remove electrical power (WP004 00).

#### 7. MAINTENANCE MODE.

#### NOTE

Operation of IFEI, except during engine start and operation, requires application of electrical power.

a. If required, apply electrical power (WP004 00).

### NOTE

After entering maintenance mode, unless a pushbutton is pressed during any 30 second period, IFEI will automatically revert to normal mode.

If nose wheelwell digital display indicator (NWWDDI) is being operated, IFEI will not enter maintenance mode. If NWWDDI is operated while IFEI is in maintenance mode, the IFEI will revert to normal mode.

b. To enter maintenance mode, press the MODE pushbutton once. The Engine, Fuel and Time displays go blank and SP appears in the L ENGINE TEMP line.

### 8. Maintenance Code Display.

a. SP, for status panel, is in the L ENGINE TEMP line. Maintenance codes will appear in the R ENGINE TEMP line. Codes appear in sequence in which failures occurred. Record each maintenance code as it appears.

#### NOTE

Operation of some systems in a high EMI environment with doors open, other than canopy and landing gear doors, may cause false component latches or maintenance codes. Component latches or maintenance codes that appear after system maintenance has been done should be cleared and applicable system built-in-test done with all doors closed.

- b. Press increment (up arrow) pushbutton.
- c. Observe maintenance code display.
- (1) Test code 888 appears for maximum of 10 seconds. If increment switch is not pressed again within 10 seconds, display sequence stops. To restart display with test code 888, press increment pushbutton again.
- (2) Continue to press increment pushbutton and record codes until 000 appears. If necessary to repeat display sequence, press increment pushbutton again.
- (3) To inspect recorded codes, press and hold increment pushbutton. Display sequence cycles from test code 888 through all

stored codes to 000. To stop display sequence, release increment pushbutton for more than 10 seconds.

- d. Interpret maintenance codes (A1-F18AE-FRM-000, WP003 00).
- e. To do consumables check, go to paragraph 9.
- f. To go to time set mode, press MODE pushbutton twice within a 5 second period when in maintenance or normal mode.
  - g. To return to normal mode, press MODE pushbutton once.
- h. If time set mode or return to normal mode will not be done, and if electrical power was applied, remove electrical power (WP004 00).

#### 9. Consumables Check.

- a. Consumables check monitors level of:
  - (1) Left engine oil
  - (2) Right engine oil
  - (3) Left AMAD oil
  - (4) Right AMAD oil
  - (5) APU oil
  - (6) Radar liquid cooling system liquid
  - (7) Fire extinguisher pressure
  - (8) Liquid oxygen (LOX)

- (9) Hydraulic system 1
- (10) Hydraulic system 2



Engine and AMAD readings are unreliable if taken while engine/AMAD is operating. Do not service based on operating readings.

- b. Press QTY pushbutton for approximately 1 second.
- c. Consumables check codes will automatically appear in the R TEMP window. Make sure maintenance code 995 appears indicating successful consumables check completion. After the last code, 000 will appear for 1 second, then IFEI will revert to normal mode.

### 10. TIME SET MODE.

#### NOTE

Operation of IFEI, except during engine start and operation, requires application of electrical power.

a. If required, apply electrical power (WP004 00).

#### NOTE

After entering time set mode, unless a pushbutton is pressed during any 30 second period, IFEI will automatically revert to normal mode.

- b. To enter the time set mode, press the MODE pushbutton twice within 5 seconds. The ENGINE and FUEL displays and the ET line go blank. The hours in the upper TIME line flash, a T appears in the right position of the upper FUEL line and a flashing H appears in the right position of the middle FUEL line.
- c. The real time clock in the Signal Data Computer CP-1726/ASQ-194 (SDC) is set per substeps below.
- (1) Set hours by pressing the increment or decrement pushbutton.
  - (2) Set minutes per substeps below:
- (a) Press QTY pushbutton. Minutes flash and a flashing M replaces the H.

#### NOTE

When setting minutes, clock is stopped and seconds are set to zero. Clock and seconds start when QTY pushbutton is pressed.

(b) Press increment or decrement pushbutton.

- (3) Seconds are not set. When QTY pushbutton is pressed, seconds start at 00 and clock starts.
- (4) To set zulu time offset (plus or minus hours from local time),  $\blacksquare$  do substeps below:
- (a) Press QTY pushbutton, upper time line goes blank. Zulu time offset is displayed in upper FUEL line with a + or in the right position. The middle FUEL line displays d IF H.
  - (b) Press increment or decrement pushbutton.
  - (5) To set year, do substeps below:
- (a) Press QTY pushbutton, a D is displayed in the right position of upper FUEL line. A flashing Y is displayed in the right position of the middle FUEL line and the date is displayed in the upper TIME line. The year portion of the date flashes.
  - (b) Press increment or decrement pushbutton.
  - (6) To set month, do substeps below:
- (a) Press QTY pushbutton. The D remains, a flashing M replaces the Y, and the month portion of the date flashes.
  - (b) Press increment or decrement pushbutton.
  - (7) To set day, do substeps below:
- (a) Press QTY pushbutton. The D remains, a flashing D replaces the M and the day portion of the date flashes.

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### NOTE

If a fictitious date is entered, for example 11:31:87 (Nov 31, 1987), the SDC will reset to the first day of the next month.

(b) Press increment or decrement pushbutton.

#### NOTE

If QTY pushbutton is pressed while in day set mode, IFEI will go back to hours set mode.

- d. To return to normal mode press MODE pushbutton once.
- e. If electrical power was applied, remove electrical power (WP004  $\,$  00).

Change 16 - 15 September 2002

### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### ENGINE RUNUP HOLDBACK ASSEMBLY

## Reference Material

### None

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## **Record of Applicable Technical Directives**

None

# 1. ENGINE RUNUP HOLDBACK ADAPTER P/N 74D290002-1001.

## **Support Equipment Required**

Part Number or Type Designation	Nomenclature
74D290002-1001	Holdback Adapter
916AS100-1	Aircraft Tiedown

## **Materials Required**

None

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#### 2. INSTALLATION.

- a. Attach holdback adapter (1, figure 1) to aircraft tiedown by putting end of aircraft tiedown into slot in holdback adapter and pull aft until aircraft tiedown seats.
- b. Secure aircraft tiedown in holdback adapter with quick release pin.
- c. Attach aircraft tiedown to runup fitting and extend in direction aircraft will be pointed. Observe extended position for aircraft nose wheel spotting, then move aircraft tiedown out of the way to position aircraft.
- d. Position aircraft in correct direction using tow tractor (WP040 00), positioning nosewheels over extended aircraft tiedown position observed in step  ${\bf c}$ .



To avoid nose gear damage, do not try to apply tension to aircraft tiedown with towbar. Tension will be applied during engine operation.

- e. Slide collar aft on holdback adapter (1), put nose of holdback adapter into aircraft holdback adapter (2) and slide collar forward against collar limit pin.
- f. Align collar holes with hole in holdback adapter and secure with quick release pin.
- g. Remove slack from aircraft tiedown with tow tractor. Tension will be applied during engine run (WP022 00).

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h. Chock main wheels and, aboard ship, tiedown aircraft.

i. Disconnect towbar and move tractor and towbar from vicinity of aircraft.

#### 3. REMOVAL.

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- a. Remove quick release pin (figure 1) from collar and slide collar aft.
  - b. Remove holdback adapter (1) from aircraft holdback adapter (2).
  - c. Remove quick release pin from holdback adapter.
- d. Push aircraft tiedown out of seated position in holdback adapter and remove.
  - e. Remove aircraft tiedown from runup fitting

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4. ENGINE RUNUP HOLDBACK ADAPTER P/N 53E030001-301

## **Support Equipment Required**

Part Number or Type Designation	Nomenclature
53E030001-301	Holdback Adapter
916AS100-1	Aircraft Tiedown

## **Materials Required**

None

#### NOTE

Holdback Adapter P/N 53E030001-301 is only used at non-naval sites that have been identified not able to use or adapt to Holdback Adapter P/N 74D290002-1001.

### 5. INSTALLATION.

- a. Position fully extended engine runup holdback adapter in direction of intended pull. The arch of the arresting gear yoke (figure 2) should be on top.
- b. Attach adapter to wire rope link of aircraft anchor pad. With adapter pointing in direction of intended pull, receptacle for end of deck cleat link should be on top.

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- c. Connect end of deck cleat link to adapter and engage locking assembly.
- d. Position aircraft in correct direction using tow tractor (WP040 00).
  - e. Extend and lock arresting hook.
  - f. Remove quick release pin and open arresting hook retaining bar.
  - g. Position aircraft arresting hook point in holdback adapter.
- h. Close arresting hook retaining bar and secure with quick release pin.



To avoid nose gear damage, do not try to apply tension to aircraft tiedown with towbar. Tension will be applied during engine operation.

- i. Remove slack from holdback assembly with tow tractor. Tension will be applied during engine runup (WP 022 00).
  - j. Chock main wheels and, aboard ship, tiedown aircraft.
- k. Disconnect towbar and move tractor and towbar from vicinity of aircraft.

### 6. REMOVAL.

a. Remove quick release pin (figure 2) securing arresting hook retaining bar and remove holdback adapter from aircraft arresting hook point.

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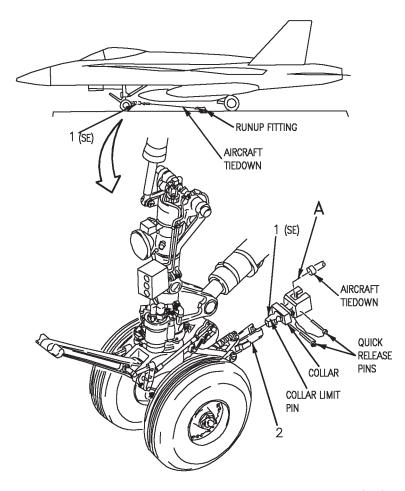
- b. Remove deck cleat link from adapter housing by disengaging locking assembly.
- c. Remove adapter housing from wire rope link on aircraft anchor pad.

#### 7. ILLUSTRATED PARTS BREAKDOWN.

8. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

019 00

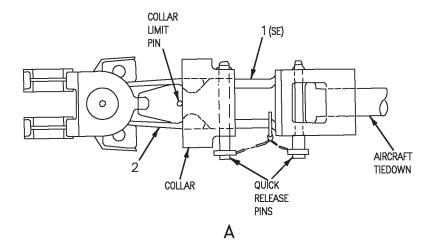
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18AC-LMM-00-(37-1)A-CATI

Figure 1. Engine Runup Holdback Adapter P/N 74D290002-1001 (Sheet 1)

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18AC-LMM-00-(37-2)A-CATI

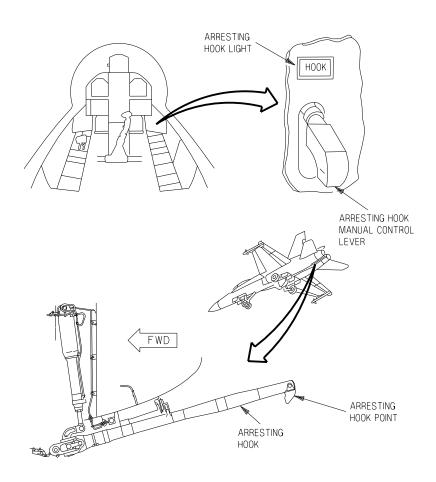
Figure 1. Engine Runup Holdback Adapter P/N 74D290002-1001 (Sheet 2)

019 00

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1	74D290002-1001	ENGINE RUNUP HOLDBACK ASSEMBLY  ADAPTER - HOLDBACK, ENGINE  RUNUP (ADAPTER FITTING) (76301)  (SUPPORT EQUIPMENT)	1		PAOGG
2	2-7404-5	. ADAPTER - HOLDBACK REPEATABLE RELEASE (HOLDBACK FITTING) (97415) (MCDONNELL SPEC 74-450055-205)	1		PAOOD

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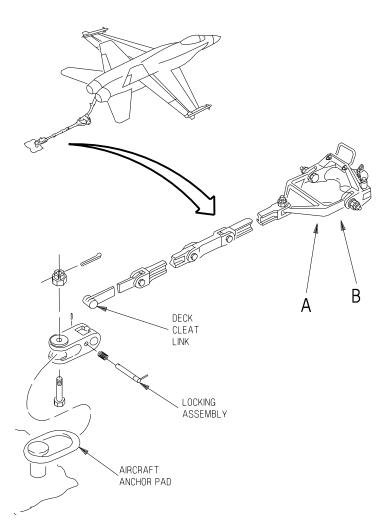
ADA542-148-1-064

Figure 2. Engine Runup Holdback Adapter P/N 53E030001-301 (Sheet 1)

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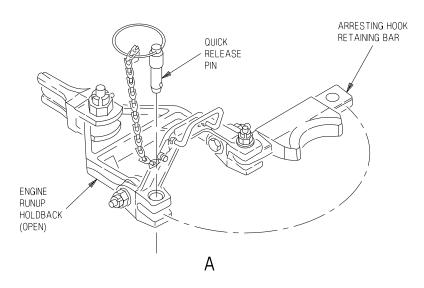
ADA542-148-2-064

Figure 2. Engine Runup Holdback Adapter P/N 53E030001-301 (Sheet 2)

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Page 13/(14 blank)



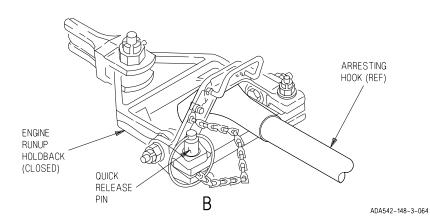


Figure 2. Engine Runup Holdback Adapter P/N 53E030001-301 (Sheet 3)

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### **PRIMING - APU FUEL SYSTEM**

This WP supersedes WP020 00, dated 15 April 1996.

## **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
-------------------------------	------------------

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## **Record of Applicable Technical Directives**

None

## **Support Equipment Required**

Part Number or Type Designation

Nomenclature

74D240207-1001

Bleeder Assembly, Air-APU Fuel

## **Materials Required**

None

## 1. STATIC PRIMING.

- a. Remove door 52 (A1-F18AC-LMM-010).
- b. If fuel tank no. 2 or APU fuel feed line has been removed, or if troubleshooting an un-commanded APU shut down, do substeps below:
  - (1) Disconnect APU fuel hose coupler.

020 00 Page 3

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## WARNING

Aviation turbine fuel is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

- (2) Using bleeder assembly, unseat fuel hose coupler half on bulkhead. Put hose end in container.
- (3) In left MLG wheelwell, hold APU priming switch up (figure 1).
- (4) Drain a minimum of one quart of fuel. Continue to drain until fuel is clear of air bubbles. Fuel flow should be a minimum of one quart in 30 seconds. If not, replace APU fuel shutoff valve (A1-F18AC-240-300, WP009 00).
  - (5) Release APU priming switch.
- (6) Remove bleeder assembly from fuel hose coupler half on bulkhead.
  - (7) Connect APU fuel hose coupler.
  - c. In left MLG wheelwell, hold APU priming switch up (figure 1).
- d. Inside door 52, on APU fuel control, hold fuel priming button in. Drain a minimum of 1 quart of fuel into container placed under APU drain outlet (figure 1, detail A). Continue to drain until fuel is clear of air bubbles.

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- e. Release fuel priming button.
- f. Release APU priming switch.
- g. Install door 52 (A1-F18AC-LMM-010).
- h. If APU will not start after static priming, do dynamic priming.

## 2. DYNAMIC PRIMING.

#### NOTE

Right engine is operated to keep APU accumulator charged. Left engine is operated to provide boosted fuel pressure to APU.

- a. Using external air, start both engines (WP022 00).
- b. On ECS control panel, pull BLEED AIR AUG knob.

### **NOTE**

Several starting attempts of the APU may be required to clear all air out of the APU fuel control.

- c. Start APU (WP021 00).
- d. Shut down APU (WP021 00).
- e. Shut down engines (WP022 00).

Change 3

LEFT MLG
WHEELWELL

APU
FUEL
HOSE
COUPLER

APU FUEL
CONTROL

Figure 1. APU Fuel System Priming (Sheet 1)

FUEL PRIMING

ADA542-20-1-059

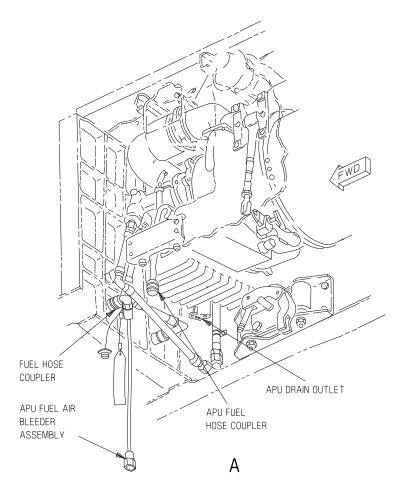
BUTTON

APU PRIMING

SWITCH

Change 3

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ADA542-20-2-055

Figure 1. APU Fuel System Priming (Sheet 2)

Change 16 - 15 September 2002

### **ORGANIZATIONAL MAINTENANCE**

## LINE MAINTENANCE PROCEDURES

### **OPERATION - APU**

Reference Material

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## **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 26	-	Air Turbine Starter System/Airframe Mounted Accessory Drive (AMAD), Modification of (ECP MDA-F18- 00068)	15 Jul 84	-

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## **Record of Applicable Technical Directives (Continued)**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorporation of (ECP MDA-F/A-18- 00121)	15 Dec 86	-
F/A-18 IAYC 853	-	Secondary Power System Surge Control Valve Modification (ECP MDA-F/A-18-00231)	15 Jan 89	-

## **Support Equipment Required**

Type Designation	Nomenclature
64A90F1	Compressor Power Unit
929248-1-1	(Ashore) 1 Gas Turbine Engine Enclosure
1 Required only if open	(Afloat) 1

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Materials Required

None

1. STARTING.

Change 16



Operate APU in authorized area.

Operation of APU or engines to find fuel plumbing leaks in the engine, AMAD, or APU areas is not authorized. To test for fuel plumbing leaks in these areas, motor engine (throttle OFF) (WP022 00) using external air and external electrical power for 10 minutes maximum with 5 minute cooling periods between motoring (WP018 01).

a. Do preparation for operation - APU and Engine (WP018 00).

#### NOTE

If maintenance was done which could result in air entering the APU fuel system or APU accumulator/start motor system, the system must be primed/bled before starting.

- b. Be sure APU fuel system is primed, if required (WP020 00).
- c. Be sure APU accumulator/start motor is bled of air, if required (WP010  $\,$ 00).

Change 3

Page 5

- d. If proximity switch control is to be used with ground maintenance mode operation, hook up proximity switch control (WP007 00).
- e. If ECS mode is to be done, apply external electrical power (WP004  $\,$  00).
- f. If Ground Maintenance Mode is to be done, decouple AMAD (paragraph 5).



To prevent discharging of the fire extinguisher system, make sure FIRE and APU FIRE warning lights are not pressed.

#### NOTE

For cockpit switch locations, refer to A1-F18AC-GAI-000, WP004 00.

g. Apply battery power (WP004 00).



To prevent discharging of the fire extinguisher system, make sure the FIRE EXTGH DISCH and FIRE EXTGH READY lights are both off.

h. If FIRE EXTGH DISCH light or FIRE EXTGH READY light is on, immediately disconnect battery power (WP004 00). Contact work center 13B to properly reset fire extinguisher system

021 00 Page 6

i. Deleted.

Change 3

#### NOTE

Each of the three FIRE warning lights contain four individual sections which relate to a fire detection element in the fire detection circuit. A malfunction of an engine/AMAD fire detection element is indicated by a dark section in a FIRE warning light. If a malfunction of an APU fire detection element exists, all sections of the APU FIRE warning light will be dark.

- j. On FIRE TEST panel, move the fire test switch to TEST A and then TEST B and verify the items listed below:
- (1) All parts of the three FIRE warning lights come on in each test position.
- (2) Voice alert warnings ENGINE FIRE LEFT, ENGINE FIRE RIGHT, APU FIRE, BLEED AIR LEFT and BLEED AIR RIGHT are heard in the headset.
  - (3) L BLEED and R BLEED lights come on.

## WARNING

To prevent injury from high temperature exhaust, remain clear of APU exhaust.



To prevent damage to APU, do not try to start APU with center part of BLEED AIR control switch pulled up.

To prevent running engagements during APU coast down and to prevent torching from APU exhaust, wait 2 minutes between APU shutdown and another APU start.

To prevent damage to APU turbine from a slow start, do not use APU ACC light out indication as an indication of correct APU accumulator charge.

To prevent damage to APU due to lubrication system overheating, do not operate APU for more than five minutes with door 52 removed.

## **NOTE**

If fire or overheat condition is detected, APU will shut down automatically and fire extinguisher will automatically discharge.

The fire extinguishing system may be activated manually by pressing the APU FIRE warning light, then pressing the FIRE EXTGH discharge switch.

If more than one attempt is required to start APU, be sure APU accumulator is recharged before each attempt.

After priming APU fuel system, more than one start attempt may be required to fill APU fuel manifold before APU will start.

- k. Be sure center part of BLEED AIR control switch is pushed in.
- l. On APU control panel, set APU control switch ON. Verify APU starts and READY light comes on within 30 seconds.

## WARNING

If external fuel leakage is observed during APU operation, set APU control switch OFF, and push both engine FIRE warning lights.

## **NOTE**

Leak inspection is required on first run following APU installation.

m. If leak inspection is required, use strong light and inspect through intake screen in door 52.

#### NOTE

APU accumulator charge will be depleted unless right engine is started, right engine is motored for 2 minutes or right AMAD is run in ground maintenance mode for 2 minutes.

- n. If APU was started only to verify operation or for leak inspection, engage right AMAD in ground maintenance mode for 2 minutes to recharge APU accumulator.
- 2. OPERATION.
- 3. **ENGINE START.** Do as required (WP022 00).
- 4. **ECS MODE.** Do steps below:
- a. On ECS panel assembly, pull center part of BLEED AIR control switch.
- b. On ECS panel assembly, set BLEED AIR control switch to NORM.
- c. On GND PWR control panel assembly, set and hold 2 switch to B ON for three seconds.

#### NOTE

When operating in high ambient temperatures, the avionics undercool warning temperature sensor may cause GND PWR switches to return to AUTO.

- d. If GND PWR switches return to AUTO during high ambient temperature operation, stabilize avionics cooling per substeps below:
- (1) On ECS panel assembly, set CABIN PRESS switch to RAM DUMP.

#### NOTE

Cabin cooling airflow is shutoff until avionics cooling is stabilized.

- (2) Reset GND PWR switches as required.
- (3) If GND PWR switches return to AUTO, repeat step (2) until avionics undercool warning temperature sensor is cooled and GND PWR switches remain on.

## NOTE

After avionics ducts and equipment are cooled, cabin cooling airflow can be turned on.

(4) If cabin cooling airflow is required, on ECS panel assembly, set CABIN PRESS switch to NORM.



To prevent damage to ground air dust cover from excessive heat, if installed, remove dust cover from ground air connection if ECS mode will be operated for more than 30 minutes.

- e. If ECS mode will be operated for more than 30 minutes, remove dust cover if installed, from ground air connection in right MLG wheelwell.
  - f. To shut down ECS, do substeps below:
- (1) On 163427 AND UP; ALSO 161353 THRU 163175 AFTER F/A-18 IAYC 853, with engine(s) operating, do substeps below:
- (a) On ECS panel assembly, push center part of BLEED AIR control switch.  $\,$
- (b) On ECS panel assembly, set BLEED AIR control switch to OFF.
- (c) On GND PWR control panel assembly, set 2 switch to AUTO.
- (2) On 161353 THRU 163175 BEFORE F/A-18 IAYC 853, with engine(s) operating, do substeps below:

# CAUTION

To prevent damage to APU, do not push center part of BLEED AIR control switch in until engine is operating at 80 % N<sub>2</sub> RPM minimum.

- (a) Slowly advance throttle to 80% N<sub>2</sub> RPM.
- (b) On ECS panel assembly, push center part of BLEED AIR control switch.
- $\,$  (c) On ECS panel assembly, set BLEED AIR control switch to OFF.
- $\,$  (d) On GND PWR control panel assembly, set 2 switch to AUTO.
  - (3) Engine(s) not operating, do substeps below:
- (a) On ECS panel assembly, push center part of BLEED AIR control switch.
- $\,$  (b) On ECS panel assembly, set BLEED AIR control switch to OFF.
- (c) On GND PWR control panel assembly, set 2 switch to AUTO.
- 5. **GROUND MAINTENANCE MODE.** Operate for electrical power, hydraulic power, and fuel motive flow/boost pump operation per substeps below. Ground maintenance mode may be powered by APU or, on 161702 AND UP; ALSO 161353 THRU 161528 AFTER F/A-18 AFC 26, by external air.

#### 6. Decouple AMAD.

a. Open door 54 L or R (A1-F18AC-LMM-010).



To prevent damage to AMAD, do not operate decoupler handle while AMAD is turning.

#### NOTE

When ground maintenance mode is used for hydraulic power, use right AMAD, hydraulic system no. 2, unless otherwise specified.

- b. On left or right AMAD:
- (1) Slide decoupler handle away from ATS approximately 1/8 inch and pull handle down.
  - (2) Turn the longer side of the handle aft as far as it will go.
- (3) Pull the handle down as far as it will go and rotate back to its initial position.

#### 7. **Run.**

a. If APU is to be used, start APU, do paragraph 1.

# CAUTION

On 161353 THRU 161528 BEFORE F/A-18 AFC 26, to prevent damage to ATS, do not use external air for ground maintenance mode operation.

- b. If external air is to be used, do substeps below:
- (1) Remove dust cover from air connection in right MLG wheelwell.
  - (2) Connect air supply hose from air source to air connection.
  - (3) Start air source.
  - (4) Set output switch to 5:1.

## WARNING

To prevent injury from high temperature exhaust, remain clear of ATS exhaust.

#### NOTE

APU accumulator charge will be depleted unless right engine is started, right engine is motored for 2 minutes or right AMAD is run in ground maintenance mode for 2 minutes.

- c. On APU control panel, set ENG CRANK switch to L or R and release.
  - (1) ENG CRANK switch remains in selected position.
  - (2) ATS drives AMAD to a stabilized speed.
- (3) On caution light indicator panel, L GEN or R GEN caution light out.
- (4) On Hydraulic Pressure Indicator AGU-15/A, HYD PRESS 1 or 2 indicates 2850 to 3250 psi.
- (5) Hydraulic system no. 1 or no. 2 (door 56 L or R) In green band.

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#### NOTE

Switches on GND PWR control panel assembly are held in the ON position electromagnetically. When electrical power is interrupted, the switches deactivate automatically and must be reset when power is restored.

d. Determine if GND PWR switch(es) is required to be set to ON by referring to WP005 00. If required, set and hold applicable control switch on GND PWR control panel assembly to ON for three seconds.



To prevent damage to related equipment, cooling air outlets must be covered to prevent loss of cooling air if any of the units listed below are removed.

Electronic Equipment Control C-10380/ASQ Head Up Display Unit AN/AVQ-28 Digital Display Indicators Horizontal Indicator IP-1350/A

#### **NOTE**

GND PWR switch(es) will return to AUTO after 20 seconds if a low cooling problem exists.

e. If GND PWR switches return to AUTO after 20 seconds, apply external ground cooling air (WP011 00).

- f. If external ground cooling air was applied on GND PWR control panel assembly, reset applicable GND PWR switch(es).
- g. If GND PWR switches are not required and FCS HOT light comes on, on ELEC power control panel assembly, set L or R GEN control switch OFF. Apply external ground cooling air (WP011 00). Then on ELEC power control panel assembly set L or R GEN control switch NORM.
- h. If electrical power is being applied with any of the connectors listed in Table 1 disconnected, open circuit breakers shown in WP006 00 figure 3.
  - i. Operate in ground maintenance mode as long as required.

#### 8. Electrical Power Turn Off (Do as required).

a. On ELEC power control panel assembly, set L or R GEN control switch to OFF.

#### 9. Electrical Power Turn On (Do as required).

- a. On ELEC power control panel assembly, set L or R GEN control switch NORM.
- b. If required, on GND PWR control panel assembly, reset appropriate GND PWR switch(es).

#### 10. **Stop.**

- a. Be sure right AMAD has been operated 2 minutes to recharge APU accumulator.
  - b. On APU control panel, set ENG CRANK switch to OFF.

- c. If external air was used, do substeps below:
  - (1) Shut down air source.
  - (2) Disconnect air supply hose from aircraft.

#### 11. Couple AMAD.

- a. On left or right AMAD:
- (1) Turn the longer side of the decoupler handle aft, push up and rotate back to its initial position.

#### NOTE

Be sure AMAD decoupler handle is in the stowed position, rotated fully counterclockwise, to prevent AMAD being electrically decoupled.

- (2) Slide handle toward ATS and push handle up.
- b. Close door 54 L or R (A1-F18AC-LMM-010).

#### 12. SHUTDOWN.



To prevent damage to APU, do not shut down APU while cranking an engine when the opposite engine is running.

a. On APU control panel, be sure ENG CRANK switch is set to OFF before APU shut down.

#### NOTE

Omit steps starting with (ECS) if ECS mode was not operated.

- b. (ECS) On 163427 AND UP; ALSO 161353 THRU 163175 AFTER F/A-18 IAYC 853, with engine(s) operating, do substeps below:
- (1) (ECS) on ECS panel assembly, push center part of BLEED AIR control switch.
- $\,$  (2) (ECS) On ECS panel assembly, set BLEED AIR control switch to OFF.



To prevent damage to APU, do not push center part of BLEED AIR control switch in until engine is operating at 80 % N<sub>2</sub> RPM minimum.

- c. (ECS) On 161353 THRU 163175 BEFORE F/A-18 IAYC 853, with engine(s) operating, do substeps below:
  - (1) (ECS) Slowly advance throttle to 80 % N<sub>2</sub> RPM.
- (2) (ECS) On ECS control panel assembly, push center part of BLEED AIR control switch.
- (3) (ECS) On ECS panel assembly, set BLEED AIR control switch to OFF.

# CAUTION

(ECS) On 161353 THRU 163175 BEFORE F/A-18 IAYC 853, to prevent damage to APU, do not use APU EMERGENCY SHUTDOWN switch in nose wheelwell for normal APU shut down.

(ECS) On 161353 THRU 163175 BEFORE F/A-18 IAYC 853, to prevent damage to APU, wait a minimum of 10 seconds before shutting down APU after BLEED AIR AUG operation.

d. On APU control panel, set APU control switch OFF.



To prevent damage to battery bus contactors and/or batteries, be sure BATT switch is set to OFF and BATT SW caution light is off.

- e. On ELEC power control panel assembly, set BATT switch OFF.
- f. On ECS control panel assembly, set CABIN PRESS SWITCH to NORM.  $\label{eq:control} % \begin{subarray}{ll} \end{subarray} % \begin{subarray}{l$
- g. Release parking brake rotate EMER BRK/PARK BRK control CCW, push in then turn CW.
  - h. Remove external electrical power (WP004 00).

- i. For systems operated, do fluids test and maintenance code display of nose wheelwell DDI (WP003  $\,$ 00).
  - j. (ECS) Install left ram air inlet cover (A1-F18AC-PCM-000).
  - k. (ECS) Install left ram air outlet cover (A1-F18AC-PCM-000).
  - l. (ECS) Install right ram air outlet cover (A1-F18AC-PCM-000).
  - m. (ECS) Install right ram air inlet cover (A1-F18AC-PCM-000).
  - n. Disconnect intercommunications equipment (WP012 00).
- o. If required, install dust cover on air connection in right MLG wheelwell.

Table 1. Connectors Disconnected During Maintenance

Connector(s)	Panel Assembly/Disconnect	Location
52P-C057E	No. 7 Circuit Breaker/Relay Panel Assembly	Door 10L
52P-C057F	No. 7 Circuit Breaker/Relay Panel Assembly	Door 10L
2 52P-C057F &	No. 7 Circuit Breaker/Relay Panel Assembly &	Door 10L
12P-A004A	Landing Gear Control Unit	Door 6
1 52P-C057F &	No. 7 Circuit Breaker/Relay Panel Assembly &	Door 10L
12P-D004A	Landing Gear Control Unit	Door 10R

Table 1. Connectors Disconnected During Maintenance (Continued)

Connector(s)	Panel Assembly/Disconnect	Location
3 52P-D024D	No. 2 Circuit Breaker Panel Assembly	Door 10R
52P-D026A	No. 4 Circuit Breaker Panel Assembly	Door 10R
52P-D028	Bulkhead Disconnect	Door 10R
52P-E059	No. 3 Relay Panel Assembly	Door 13L
52P-F058B &	No. 2 Relay Panel Assembly &	Door 14L
52P-C057F	No. 7 Circuit Breaker/Relay Panel Assembly	Door 10L
52P-F058B & 52P-F058C	No. 2 Relay Panel Assembly	Door 14R
2	No. 2 Relay Panel Assembly &	Door 14R
52P-F058C & 12P-A004A	Landing Gear Control Unit	Door 6
1	No. 2 Relay Panel Assembly &	Door 14R
52P-F058C & 12P-D004A	Landing Gear Control Unit	Door 10R
52P-F058C	No. 2 Relay Panel Assembly	Door 14R
52P-J078	ECS Panel Assembly	Cockpit
		Right Console

### **LEGEND**

- 1 161353 THRU 161987 BEFORE F/A-18 AFC 48
- 2 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48
  - 3 161353 THRU 161359
- 4 161360 AND UP

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **OPERATION - ENGINE**

#### **Reference Material**

General Aircraft Information	A1-F18AC-GAI-000
Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

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## **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 081	20 Dec 88	Secondary Power System, APU Surge Control Valve, Air- craft Wiring, Modifi- cation (ECP MDA- F/A-18-00231)	15 Jan 89	-

## **Support Equipment Required**

Type Designation	Nomenclature
64A90F1	Compressor Power Unit
	(Ashore) 1
929248-1-1	Gas Turbine Engine
	Enclosure (Afloat) 1
1 Required only if starting w	vith external air.

022 00

Page 3

## Materials Required

None

#### 1. STARTING.

Change 3

## **WARNING**

Operation of APU or engines to test for fuel plumbing leaks in the engine, AMAD or APU areas is not authorized. To test for fuel plumbing leaks in these areas, motor engine (throttle OFF) using external air and external electrical power for 10 minutes maximum with 5 minute cooling periods between motoring (WP018 01).

Do not operate engine(s) when Pressure Temperature Test Set TTU-205 C/D/E is connected. Engine(s) may go to high power as a result of N<sub>2</sub> Lock-up function.

- a. Prepare aircraft for engine operation (WP018 00).
- b. If engine is to be operated above  $80\,\%\,N_2$  rpm, install engine runup holdback (WP019  $\,$  00).

Change 3

022 00 Page 4

# CAUTION

To prevent discharging of the fire extinguisher system, make sure FIRE and APU FIRE warning lights are not pressed.

#### NOTE

For cockpit switch locations, refer to A1-F18AC-GAI-000, WP004 00.

c. Apply battery power (WP004 00).



To prevent discharging of the fire extinguisher system, make sure the FIRE EXTGH DISCH and FIRE EXTGH READY lights are both off.

- d. If FIRE EXTGH DISCH light or FIRE EXTGH READY light is on, immediately disconnect battery power (WP004 00). Contact work center 13B to properly reset fire extinguisher system
  - e. Deleted.

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022 00 Page 4A/(4B blank)

#### NOTE

Each FIRE warning light contains individual sections which relate to a detection element in the fire detection circuit. A malfunction of a detection element is indicated by a dark section in a FIRE warning light.

- f. On FIRE TEST panel, move the fire test switch to TEST A and TEST B and verify the items listed below:
- (1) On LH and RH advisory and threat warning indicator panels, all parts of the three FIRE warning lights come on in each test position.
- (2) Voice alert warnings ENGINE FIRE LEFT, ENGINE FIRE RIGHT, APU FIRE, BLEED AIR LEFT and BLEED AIR RIGHT heard in the headset.
- (3) On LH advisory and threat warning indicator panel, L BLEED and R BLEED lights come on.

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## **WARNING**

To prevent personnel ingestion when engine ground runup screens are not installed or personnel penetration when engine ground run up screen(s) are installed, do not enter area within 9 foot radius of engine inlets while engines are at IDLE or 25 foot radius of engine inlets while engines are at MIL or MAX power. When maintenance instructions require going near engine air inlets, approach from rear with engines operating, remaining as far to rear as possible. Use caution to prevent loose objects from being ingested by engines.

On engines equipped with Viton coated Outer Bypass Ducts, combustion can produce toxic fumes of Hydrogen Fluoride and Carbonyl Fluoride. Potentially harmful vapors which could cause irritation to respiratory tract may be released at temperatures greater than 400° F (205°C). Self-contained breathing apparatus and neoprene gloves must be worn when fighting fires or handling refuse from a Viton fire, even if material is cool. Waste should be landfilled in accordance with Federal, State, and Local regulations.

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022 00 Page 6



To prevent damage to a newly installed engine, service oil system (A1-F18AC-PCM-000).

To prevent damage to a newly installed engine, motor engine at 29 to 33%  $N_2$  rpm for 3 minutes with throttle OFF. Be sure oil pressure gets to 10 psi minimum within 30 seconds and fuel flow (FF) is zero.

If ambient temperature is 7°C (45°F) or below and dew point is within 4°C or 7°F of ambient temperature, the ground run-up screen may be used with continual observation for ice accumulation on the air inlet leading edge or ground run-up screen. Monitor ground run-up screen from outside of air inlet danger area(s). If ice forms, shut down engine to avoid FOD.

To prevent engine damage, if ambient temperature is 7°C (45°F) or below, engine ANTI ICE must be turned on.

If ambient temperature is between 0°C (32°F) and 7°C (45°F), avoid extended engine operation above IDLE rpm to minimize the potential for ice accumulation on air inlet leading edge (inlet lip). Inlet lip icing can occur under these conditions with no INLET ICE caution displayed.

If ambient temperature is 0°C (32°F) or below and

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022 00

Page 6A/(6B blank)

precipitation exists (rain, snow, sleet, fog), ground runup screen installation is not recommended. Use of the ground run-up screen under these ambient conditions could result in rapid icing of the ground run-up screen causing screen collapse, engine stall, or severe engine FOD.

To prevent engine damage, do not try to start or motor engine after emergency shutdown until malfunction has been corrected. Be sure both rotors turn freely before trying restart.

To prevent fuel spillage, if two starts are tried on one engine, or previous starts/shutdowns since flight or tank draining is unknown, drain fuel dump catch tank in door 68 L or R before trying another start.

If visible tailpipe fire occurs, chop throttle to OFF. If fire continues, push left or right engine FIRE warning light. Be sure APU READY light is on or external air or crossbleed air is available to motor engine. When engine speed drops to  $20\,\%$  N $_2$  rpm, move ENG CRANK switch to affected engine (L or R). Allow engine to motor for up to 5 minutes to extinguish fire. Move ENG CRANK switch to OFF. If fire continues, discharge ground fire extinguisher into tailpipe.

Normal brake pressure is not available without right engine operating. To maintain aircraft control, make sure parking brake is set.

To prevent damage to fuselage formers if stabilator is to be operated, doors 68 L and/or R must be closed, top row of fasteners installed and lockset assemblies secured.

g. Start engine(s) per paragraph 2, 3 or 4.

#### 2. STARTING WITH APU.

## WARNING

Operation of APU or engines to test for fuel plumbing leaks in the engine, AMAD or APU areas is not authorized. To test for fuel plumbing leaks in these areas, motor engine (throttle OFF) using external air and external electrical power for 10 minutes maximum with 5 minute cooling periods between motoring.

To prevent possible fire, if external fuel leakage is observed during APU and or engine operation, set APU control switch OFF and push FIRE warning light for both engines. Move throttles to OFF and turn off electrical power.

a. Start APU (WP021 00).

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### **WARNING**

To prevent personnel injury from air turbine starter (ATS) failure, do not hold ENG CRANK switch to L or R while starting engine(s). Holding ENG CRANK switch overrides the ATS overspeed cut-out and ATS damage is possible above  $62\,\%\,N_2$  rpm.

# CAUTION

To prevent damage to APU, do not shut down APU while cranking an engine when the opposite engine is operating. Shut down APU after setting ENG CRANK switch to OFF.

#### **NOTE**

APU accumulator charge will be depleted unless right engine is started or right AMAD is run in ground maintenance mode for 2 minutes.

If left or right engine or APU FIRE warning light comes on, discharge fire extinguisher by pushing the light that came on and pushing FIRE EXTGH DISCH switch when READY light comes on.

- b. On APU control panel, set ENG CRANK switch to L or R and release.
  - c. At 15 % N<sub>2</sub> rpm, advance throttle to IDLE.
  - d. Verify indications below:
- (1) Light off occurs within 20 seconds as indicated by a sharp rise in EGT.
  - (2) No indication of roll back or hung start.
- (3) If no EGT rise within 20 seconds after throttle advance or  $N_2$  rpm stabilized below 61  $\!\%\!$  :
  - (a) Throttle OFF.
  - (b) Continue cranking engine for 3 minutes.
  - (c) Throttle IDLE.
  - (4) If still no start:
    - (a) Throttle OFF.
    - (b) Continue cranking engine for 3 minutes.
    - (c) ENGINE CRANK switch OFF.
    - (d) APU control switch OFF.

- (5) EGT below limits of figure 5.
- (6) If indication of hot start:
  - (a) EGT rises rapidly through 750°C during start.
  - (b) Throttle OFF.
- (c) Continue to motor engine until EGT is below 200°C. If ENG CRANK switch has returned to OFF, re-engage when  $\rm N_2$  rpm is below 20 % rpm.
  - (d) APU control switch OFF.
  - (7) Oil pressure 10 psid minimum within 30 seconds.
  - (8) ENG CRANK switch returns to OFF by  $61 \% N_2$  rpm.

#### **NOTE**

ON 164693 AND UP; during operation, if one F404-GE-402 engine and one F404-GE-400 engine are installed, ENG MATCH CAUTION will be displayed on DDI.

ON 164693 AND UP; during operation, enhanced performance engine (EPE) advisory will be displayed on DDI above the F404-GE-402 installation(s).

(9) Engine gets to idle rpm within limits of figure 1.

- e. Allow engine to stabilize at idle and verify indications below:
  - (1) L GEN or R GEN light out.



To prevent a false maintenance code 884 (ground power circuit fail), do not set any GND PWR switches to ON with an engine-driven generator on line.

#### **NOTE**

Left or Right Digital Display Indicator (DDI) will be used for engine instrumentation.

(2) After the L GEN or R GEN light is out, set up left or right DDI for displays (WP008 00). Press ENG pushbutton on DDI.



If L ATS or R ATS appears on DDI, L or R ATS is still turning. Shut down engine to prevent damage.

(3)  $N_2$  rpm - figure 2, not more than 1% fluctuation.

Change 16

#### NOTE

During operation below flight idle, nozzle area may go closed or modulate. This is caused by marginal  $N_1$  sensor signal to the electrical control assembly. Nozzle must track correctly at flight idle and above.

- (4) NOZ POS 73 to 84%.
- $\,$  (5) OIL within limits of figure 3 and not more than 2.5 minutes above 180 psi.
  - (6) HYD PRESS 1 or 2 indicates 2850 to 3250 psi.
- (7) On ECS control panel, cycle BLEED AIR switch thru OFF to NORM.

#### NOTE

With engine at IDLE, bleed air pressure to ECS may not be enough to start ECS turbine/compressor rotation.

- (8) If air flow from ECS louvers in cockpit is not cool when SUIT/CABIN TEMP control is set to COLD, momentarily advance throttle to  $76\,\%\,N_2$  rpm.
- (9) Hydraulic system no. 1 or no. 2 (door 56 L or R) In green band.

#### NOTE

It is not required to start both engines for engine test. ECS operation can be maintained with APU.

- f. If APU is required for ECS operation, on ECS control panel, pull center part of BLEED AIR switch.
- g. If other engine is to be started with APU, repeat procedure from paragraph 2b.

#### NOTE

After second generator is on line, APU cool down timer allows APU to run at standby power for 60 seconds before APU shuts down automatically.

h. If second engine was started, verify automatic APU shut down.



On 161353 THRU 163175 BEFORE F/A-18 AFC 081, to prevent APU surges when operating in ECS BLEED AIR AUG mode, one engine must be advanced slowly to  $80\,\%\,N_2$  rpm before shutdown of BLEED AIR AUG.

- i. If APU is operating in ECS BLEED AIR AUG mode, do substeps below before APU is shutdown:
- (1) On 161353 THRU 163175 BEFORE F/A-18 AFC 081, advance one engine to  $80\,\%\,N_2$  rpm.

- (2) On ECS panel assembly, push center part of BLEED AIR control switch.
- j. If APU is not required for second engine start or ECS operation, on APU control panel set APU control switch to OFF.
- k. Go to paragraph 4 for crossbleed starting or paragraph 5 for operation.

#### 3. STARTING WITH EXTERNAL AIR.

- a. If required, remove dust cover from air connection in right MLG wheelwell.
  - b. Connect air supply hose from air source to air connection.
  - c. Start air source.
  - d. Set output air switch to 5:1.
  - e. Start either engine, do paragraphs 2b thru 2e.

#### **NOTE**

Other engine may be crossbleed started per paragraph 4.

- f. If other engine is to be started, repeat paragraphs 2b thru 2e.
- g. Shut down air source.
- h. Disconnect air supply hose from aircraft.
- i. If required, install dust cover on air connection in right MLG wheelwell.

j. Go to paragraph 5 for operation.

#### 4. CROSSBLEED STARTING.

#### NOTE

For crossbleed start, APU must be shutdown.

Crossbleed start cannot be done if either AMAD is decoupled.

Procedure may be done with either engine operating.

If inlet temperature is -10°F or below, advance operating engine to 1900 PPH FF minimum and 72 %  $\rm N_2$  rpm minimum.

- a. Advance throttle of operating engine to 1900 PPH FF minimum and 80 %  $\,N_2$  rpm minimum.
  - b. Start other engine, do paragraphs 2b thru 2e.
  - c. Retard throttle of first engine to IDLE.
  - d. Go to paragraph 5 for operation.

### 5. OPERATION.

a. If installed, tension holdback per substeps below:



To prevent damage, if afloat, loosen tiedowns to allow full load to be borne by holdback.

- (1) If afloat, loosen tiedowns.
- (2) Remove chocks.
- (3) Release parking brake rotate EMERG BRK/PARK BRK control  $45^{\circ}$  CCW, push in, then turn CW.
- (4) Advance throttle(s) slowly to 80 %  $N_2$  rpm to tension holdback.
- (5) Set parking brake rotate EMERG BRK/PARK BRK control 90  $^{\circ}$  CCW and pull.
- (6) Position chocks in back of MLG wheels to hold tension on holdback.
  - (7) If afloat, tighten tiedowns.
  - (8) Retard throttle(s) to IDLE.

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# CAUTION

If L or R FUEL HOT caution appears or FUEL TEMP on DDI exceeds 79°C, shut down affected engine to avoid damage to generator(s) or engine(s).

#### NOTE

Make sure ejection seat SAFE/ARMED handle is in SAFE position. On F/A-18C AND F/A-18D, when right throttle is advanced to MIL and above, CK SEAT caution will light, CHECK SEAT will appear on DDI, MASTER CAUTION light will come on and audio caution tone will sound in headset.

b. Operate engine(s) as required, observing limits below:

	IDLE	MIL/MAX
RPM	Figure 2	102.3% maximum
EGT	190° to 590°C	Figure 4
FF		12,000 PPH maximum
		12,500 PPH maximum

Change 5

022 00 Page 19

	IDLE	MIL/MAX	
NOZ POS	73 to 84 %	MIL:  1 0 to 57 % 2 0 to 48 %  MAX: At least 42 % greater than MIL NOZ POS	
OIL	Figure 3	Figure 3	
1 F404-GE-400 2 F404-GE-402			

#### 6. SHUTDOWN.

- a. On left or right DDI, set power switch to OFF.
- b. If installed, relax tension on holdback per substeps below:
- (1) Release parking brake by turning EMERG BRK/PARK BRK handle 45° CCW, push in, then turn CW.
  - (2) Advance throttle(s) slowly to 80 % N<sub>2</sub> rpm.
  - (3) If afloat, loosen tiedowns.
  - (4) Remove chocks from in back of MLG wheels.
  - (5) Chop throttles to IDLE.
  - (6) Turn EMERG BRK/PARK BRK handle 90° CCW and pull.

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- (7) Chock MLG wheels.
- (8) If afloat, tighten tiedowns.



To prevent engine damage, cool down at IDLE for 5 minutes if engine was operated above 747°C for more than 5 minutes. Cool down for 1 minute for all other engine operations.

c. If engine has been operated above  $747^{\circ}\mathrm{C}$  for more than 5 minutes, cool down at IDLE for 5 minutes. Cool down at IDLE for 1 minute for all other engine operations.

022 00

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## **WARNING**

On engines equipped with Viton coated Outer Bypass Ducts, combustion can produce toxic fumes of Hydrogen Fluoride and Carbonyl Fluoride. Potentially harmful vapors which could cause irritation to respiratory tract may be released at temperatures greater than 400°F (205°C). Self-contained breathing apparatus and neoprene gloves must be worn when fighting fires or handling refuse from a Viton fire, even if the material is cool. Waste should be landfilled in accordance with Federal, State, and Local regulations.



Make sure APU or external air is available to motor engine if internal fire occurs after shutdown. If internal engine fire occurs after shutdown, push FIRE warning light that comes on. When engine speed drops below  $20\,\%\,\mathrm{N}_2$  rpm, move ENG CRANK switch to engine affected (L or R). Allow engine to motor for up to 5 minutes to extinguish fire. If fire continues, continue motoring engine and discharge ground fire extinguisher into inlet duct. Move ENG CRANK switch to OFF.

d. Chop throttle(s) to OFF.

Change 16

022 00 Page 22

## WARNING

Do not allow ground personnel near flight control surfaces during engine spooldown. After the generators and BATT switch are OFF, the flight control computers are still energized for up to eleven seconds. A windmilling engine can provide enough hydraulic pressure to inadvertently move flight control surfaces, possibly injuring ground personnel.



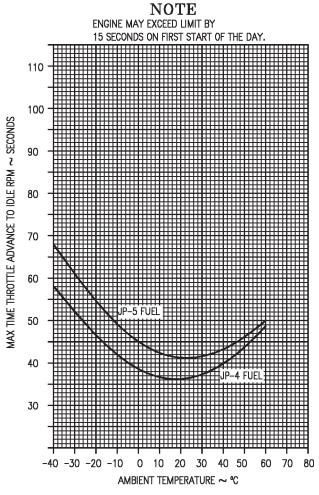
To prevent damage to battery bus contactors and/or batteries, after BATT switch is set to OFF, be sure BATT SW caution light is off.

- e. When amber FLAPS light comes on, set BATT switch to OFF.
- f. Set CABIN PRESS switch NORMAL.
- g. Deleted.
- h. Do fluids test and maintenance code display of nose wheelwell digital display indicator (NWWDDI) (WP003 00) for systems operated.
- i. If engine was run for first time after installation, service oil system (A1-F18AC-PCM-000).

- j. Remove runup holdback (WP019 00).
- k. Remove left engine ground runup screen (A1-F18AC-PCM-000).
- l. Close door 65L (A1-F18AC-LMM-010).
- m. Drain fuel dump catch tank(s) in door(s) 68 L and/or R.
- n. Close door 65R (A1-F18AC-LMM-010).
- o. Remove right engine ground runup screen (A1-F18AC-PCM-000).
- p. Disconnect intercommunications equipment (WP012 00).
- q. When engines are cool:
  - (1) Install left engine air inlet cover (A1-F18AC-PCM-000).
  - (2) Install left ram air inlet cover (A1-F18AC-PCM-000).
- (3) Install left inlet bleed air exit duct plug (A1-F18AC-PCM-000).
- (4) Install left inlet bleed air exit door plug (A1-F18AC-PCM-000).
  - (5) Install left ram air outlet cover (A1-F18AC-PCM-000).
  - (6) Install left B-sump vent plug (A1-F18AC-PCM-000).
  - (7) Install left engine bay vent cover (A1-F18AC-PCM-000).

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- (8) Install right engine bay vent cover (A1-F18AC-PCM-000).
- (9) Install right B-sump vent plug (A1-F18AC-PCM-000).
- (10) Install right ram air outlet cover (A1-F18AC-PCM-000).
- (11) Install right inlet bleed air exit door plug (A1-F18AC-PCM-000).
- (12) Install right inlet bleed air exit duct plug (A1-F18AC-PCM-000).
  - (13) Install left tailpipe cover (A1-F18AC-PCM-000).
  - (14) Install right tailpipe cover (A1-F18AC-PCM-000).
  - (15) Install right engine air inlet cover (A1-F18AC-PCM-000).
  - (16) Install right ram air inlet cover (A1-F18AC-PCM-000).
  - r. Complete ground run records.



18AC-LMM-00-(42-1)43-CATI

Figure 1. Maximum Starting Time

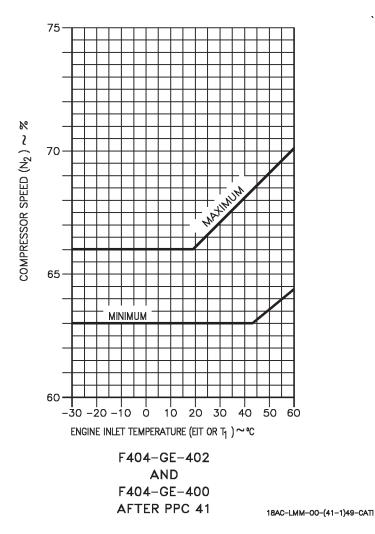
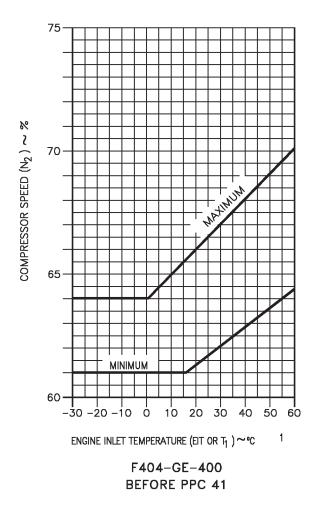


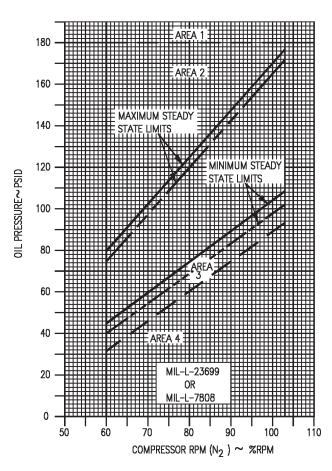
Figure 2. Compressor Idle Speed Limits (Sheet 1)





18AC-LMM-00-(41-2)49-CATI

Figure 2. Compressor Idle Speed Limits (Sheet 2)



18AC-LMM-00-(39-1)51-CATI

Figure 3. Oil Pressure Limits (Sheet 1)

- AREA 1 LIMITED TO FIRST START OF DAY OR INLET TEMP BELOW -18°C FOR THE FIRST 2.5 MINUTES OF ENGINE OPERATION ONLY.
- AREA 2 LIMITED TO THE FIRST START OF DAY OR INLET TEMP BELOW -18°C FOR 5 MINUTES AT MIL. OIL PRESSURE MUST BE DECREASING AFTER 2.5 MINUTES AT MIL OR 5 MINUTES AT IDLE.
- AREA 3 OPERATION BELOW MINIMUM STEADY STATE LIMITS PERMITTED ONLY WHEN ENGINE FUEL INLET TEMPERATURE IS ABOVE 38°C, OR SAME CONDITIONS AS AREA 4 EXIST.
- AREA 4 LIMITED TO MANEUVERS, CLIMBS, DIVES, TURNS, ROLLS OR NEGATIVE G'S. NEGATIVE G OPERATION LIMITED TO 30 SECONDS FOR UNLIMITED EXCURSION, IF 1 MINUTE OF POSITIVE G OPERATION SEPARATES EXCURSION. MUST RETURN TO NORMAL WITHIN 1 MINUTE AFTER COMPLETING MANEUVER.

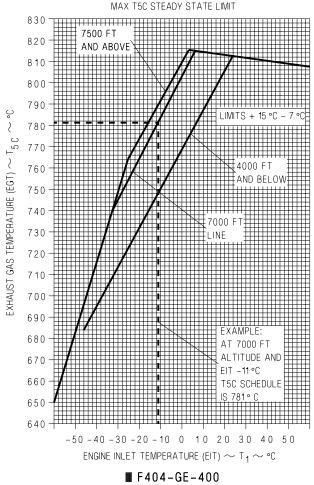
LIMITS FOR MIL-L-23699.

LIMITS FOR MIL-L-7808 OR MIXTURE OF MIL-L-7808 AND MIL-L-23699.

# A1-F18AC-LMM-000

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ADA542-38-1-076

Figure 4. EGT (T<sub>5C</sub>) Control Schedule Limits - MIL and Afterburner (Sheet 1)

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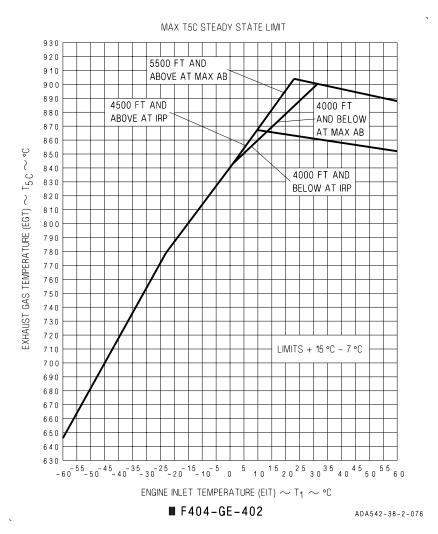
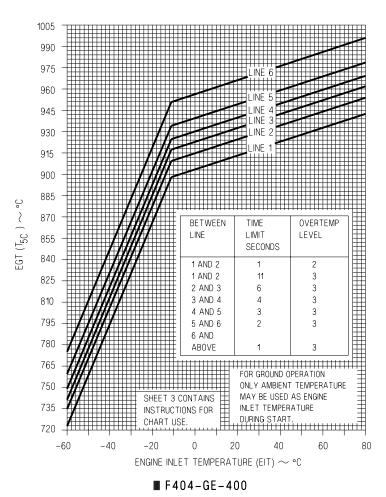


Figure 4. EGT (T<sub>5C</sub>) Control Schedule Limits - MIL and Afterburner (Sheet 2)

Change 16



ADA542-77-1-076

Figure 5. Start To Idle EGT  $(T_{5C})$  Limits (Sheet 1)

Change 16

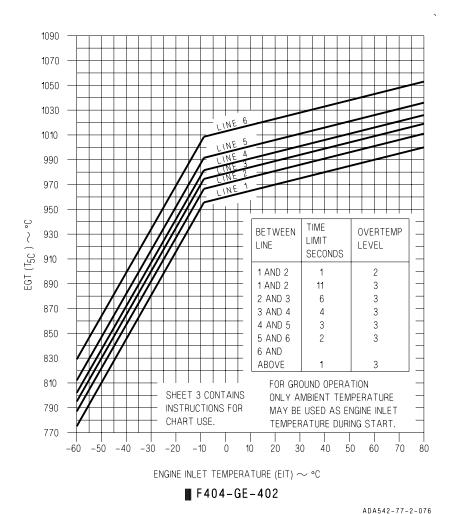


Figure 5. Start To Idle EGT  $(T_{5C})$  Limits (Sheet 2)

022 00

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#### INSTRUCTIONS FOR START TO IDLE LIMITS

#### NOTE

A1-F18AC-NFM-000,  $T_5$  LIMIT DURING START IS 815°C. THIS LIMIT PROVIDES THE OPERATOR ENOUGH TIME TO ABORT THE START BEFORE ENGINE DAMAGE OCCURS. A START THAT EXCEEDS 815°C, BUT DOES NOT SATISFY SHEET 1 OR 2 LIMITS, REQUIRES NO MAINTENANCE ACTION.

- 1. IF ENGINE IS OPERATED BELOW LINE 1, NO MAINTENANCE ACTION IS REQUIRED.
- 2. IF ENGINE IS OPERATED BETWEEN LINES 1 AND 2 FOR LESS THAN 11 SECONDS, BORESCOPE INSPECT HOT SECTION (A1-F18AC-270-300, WP060 00) AND TROUBLESHOOT CAUSE OF OVER TEMPERATURE, TABLE 2, (A1-F18AC-270-200, WP005 00).
- 3. IF ENGINE IS OPERATED BETWEEN LINES 2 THRU 6, EQUAL TO OR GREATER THAN TIME LIMIT ALLOWED OR BETWEEN LINES 1 AND 2 FOR 11 SECONDS OR MORE, REPLACE ENGINE (A1-F18AC-270-300, WP003 00).
- 4. IF THE PRECISE TEMPERATURE AND TIME CANNOT BE DETERMINED, AND IECMS DATA IS NOT AVAILABLE, A HOT SECTION BORESCOPE INSPECTION (A1-F18AC-270-300, WP060 00) AND TROUBLESHOOTING (A1-F18AC-270-200, WP005 00) TO DETERMINE CAUSE MUST BE DONE BEFORE RETURNING ENGINE TO SERVICE.

## Figure 5. Start To Idle EGT (T<sub>5c</sub>) Limits (Sheet 3)

15 April 1996

Page 1

### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### **ENGINE - WATER WASH**

### **Reference Material**

Corrosion Control Cart	NAVAIR 19-20D-1
Environmental Control Systems	A1-F18AC-410-300
Engine Bleed Air Pressure	
Regulation and Shutoff Valve	WP005 00
Line Maintenance Access Doors	A1-F18AC-LMM-010

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Subject	Page No.
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## A1-F18AC-LMM-000

# 023 00

Page 2

## **Alphabetical Index (Continued)**

Subject	Page No.
Wash Completion	8
Wash Procedure	7
Water Wash Adapter, Figure 1	11
Water Wash Screen, Figure 3	15

## **Record of Applicable Technical Directives**

None

023 00

Page 3

## **Support Equipment Required**

Nomenclature
Water Wash Adapter
Corrosion Control Cart
External Electrical Power Source
Water Wash Screen
Lock, Pressure Regulating ECS Engine Water Wash

## **Materials Required**

Specification or Part Number	Nomenclature
MIL-C-85704	Cleaning Compound Engine Gas Path
-	Fresh Water
O-M-232	Methanol
(CAGE 81348)	

### 1. PREPARATION.

a. Prepare aircraft for engine operation (WP018 00).

## WARNING

Cleaning compound will cause serious injury if not handled correctly. Wear rubber gloves, rubber apron and protective face shield. If material contacts the skin or eyes, flush the area immediately with water and report to medical facility.

Methanol is flammable, do not use near open flames or very hot surfaces. If swallowed it may be fatal or cause blindness. It cannot be made nonpoisonous. Vapors are harmful. Avoid prolonged or repeated breathing of vapors. Do not use when ambient temperature is above 40°F, unless adequate ventilation is provided according to local codes. Solution of 40% methanol and 60% water is flammable and should be treated as a flammable mixture.



Engine must be allowed to cool for 45 minutes and  $T_{\rm 5C}$  must be below 160°C before doing this procedure.

#### NOTE

Do not clean the engine if ambient temperature is below  $-15\,^{\circ}$  F. For ambient temperatures between  $40\,^{\circ}$  F and  $-15\,^{\circ}$  F, a 40 percent methanol and 60 percent water solution is used at a ratio of eight parts methanol water solution to 1 part cleaning compound.

For ambient temperatures above 40°F an 8 part water to 1 part cleaning compound is used.

- b. For ambient temperatures between  $40^{\circ}$  F and  $-15^{\circ}$  F, mix 4 parts methanol to 6 parts fresh water. Mix 1 part cleaning compound to 8 parts methanol/fresh water solution in corrosion control cart (approximately 7 gallons).
- c. For ambient temperatures above 40°F, mix an 8 part fresh water to 1 part cleaning compound (3.1 quarts cleaning compound to 24.8 quarts fresh water) in corrosion control cart (approximately 7 gallons).



To prevent engine FOD, inspect water wash adapter for loose parts.

d. Inspect water wash adapter for loose parts.

- e. Inspect engine for FOD.
- f. Open water wash adapter mounting clamp by setting the nozzle end down, holding one mounting leg and pushing hand knob down and turning one quarter turn either direction.
- g. Position water wash adapter (1, figure 1) on intake of aircraft for engine to be washed and insert quick release pins in engine screen mounting holes.
- h. Turn hand knob until spring force holds adapter securely to intake.
  - i. Install quick release pin at top of intake (1, figure 3).
  - j. Position water wash screen over water wash adapter.
- k. Pull lower cord under aircraft and install quick release pin in lower run up screen mounting hole of opposite intake.
- l. On 161353 THRU 161521, remove engine bleed air pressure regulation and shutoff valve (A1-F18AC-410-300, WP005 00) and proceed to wash procedure.
- m. On 161522 AND UP, insert tool 74D290110-1001 (1, figure 2) through hole in door 74 L or R into engine bleed air pressure regulation and shutoff valve (figure 2). Push tool against spring force approximately one half inch and rotate one quarter turn either direction to lock tool in shutoff valve. Leave tool in place with attached warning flag clearly visible.

#### 2. WASH PROCEDURE.

- a. Position corrosion control cart in front of wing area approximately 

  10 feet from intake.
- b. Connect cleaning compound hose from corrosion control cart to quick disconnect on water wash adapter (figure 1).



To prevent FOD, area around intake must be free of foreign objects and all equipment must be secure before motoring engine.

c. Make sure area around intake is free of foreign objects and all equipment is secure before motoring engine.



To ensure engine is not accidentally started during motoring procedure, be sure throttles are locked in OFF position.

d. To ensure engine is not accidentally started during motoring procedure hold both throttles in the OFF position and move throttle friction lock forward to apply full friction.

- e. Apply external electrical power (WP004 00).
- f. Motor engine 29 to 33 %  $N_2$  rpm (WP022 00). Spray cleaning compound into engine at 60 to 65 psig hose pressure for 29 to 31 seconds after engine reaches 29 to 33 %  $N_2$  rpm.
- g. Shut down engine (WP022  $\,$ 00) and allow cleaner solution to soak in engine for approximately 5 minutes.
- h. Disconnect cleaning compound mixture hose from quick disconnect on water wash adapter.
- i. Connect fresh water hose from corrosion control cart to quick disconnect on water wash adapter.
- j. Motor engine 29 to 33 %  $N_2$  rpm (WP022 00). Spray fresh water into engine at 60 to 65 psig hose pressure for 1 minute 29 to 31 seconds after engine reaches 29 to 33 %  $N_2$  rpm.
- k. Shut off fresh water valve and continue motoring engine for 1 minute.
- 1. Repeat steps j and k, two more times or until fresh water in corrosion cart has been used (26 gallons).
  - m. Shut down engine (WP022 00).

### 3. WASH COMPLETION.

a. Disconnect fresh water hose from water wash adapter.

- b. Remove upper and lower quick release pins securing water wash screen.
  - c. Remove water wash screen.
- d. Loosen water wash adapter intake mounting clamp by pushing in and turning hand knob either direction one quarter turn.
- e. Remove quick release pins securing water wash adapter to intake and remove adapter.
- f. On 161353 THRU 161521, install engine bleed air pressure regulation and shutoff valve (A1-F18AC-410-300, WP005 00).
- g. On 161522 AND UP, push tool 74D290110-1001 against spring force rotate one quarter turn and remove (figure 2).



To prevent any water from getting into ECS system, on ECS panel assembly set ECS MODE switch to OFF/RAM, CABIN PRESS switch to NORM and BLEED AIR to NORM before starting engine.

h. On ECS panel assembly set ECS MODE switch to OFF/RAM, CABIN PRESS switch to NORM and BLEED AIR to NORM.



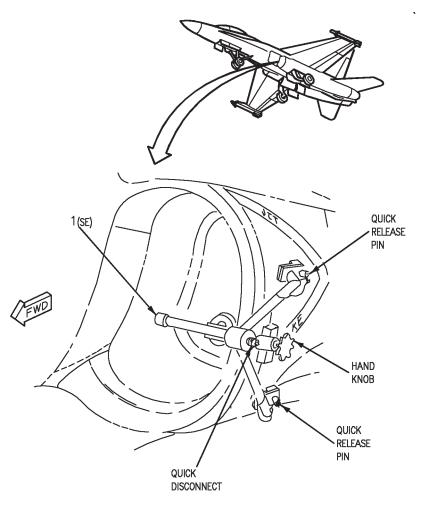
To prevent water from entering Secondary Power System, do not crossbleed start engines. Use APU or ground cart.

If water does not drain from automatic drain valve, bleed air components may be damaged during engine operation.

- i. Observe water draining from engine bleed air duct automatic drain valve and allow it to stop draining.
- j. Start engine (WP022 00) and stabilize at ground IDLE for 1 minute. Do not crossbleed start engines. Use APU or ground cart.
- k. After 1 minute at ground IDLE on ECS panel assembly, set ECS MODE switch to AUTO.
  - 1. Set ANTI ICE ENG switch to ON.
- m. Continue to run engine for a minimum of 5 minutes at ground IDLE to remove excess water.
  - n. Set ANTI ICE ENG switch to OFF.
  - o. Shut down engine (WP022 00).

### 4. ILLUSTRATED PARTS BREAKDOWN.

5. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.



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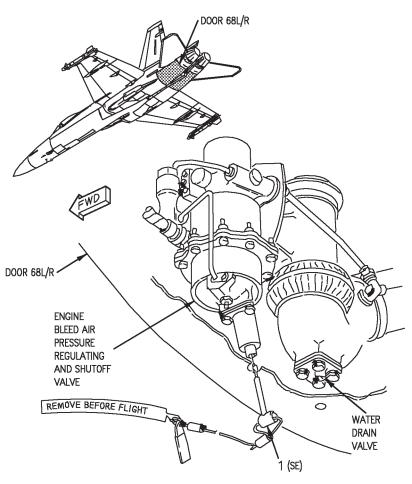
Figure 1. Water Wash Adapter (Sheet 1)

## A1-F18AC-LMM-000

023 00

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE	
1	21C8070G01	WATER WASH ADAPTER	1		PAOZZ	

Figure 1. Water Wash Adapter (Sheet 2)



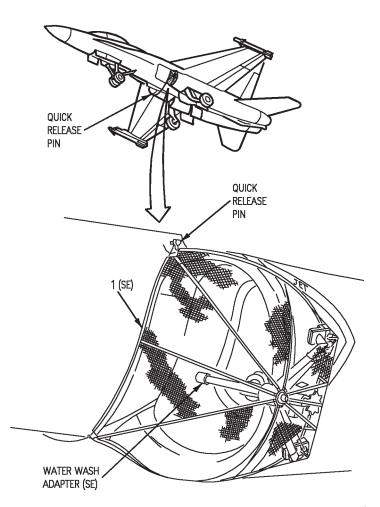
18AC-LMM-00-(81-1)A-CATI

Figure 2. ECS Water Wash Drain - 161522 AND UP (Sheet 1)

# A1-F18AC-LMM-000

023 00

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1		ECS WATER WASH DRAIN - 161522  AND UP . LOCK, PRESSURE REGULATING ENVIR. CONTROL SYS, ENG WTR WASH (76301) (SUPPORT EQUIPMENT)	1		PAOZZ



18AC-LMM-00-(94-1)-SCAN

Figure 3. Water Wash Screen (Sheet 1)

# A1-F18AC-LMM-000

023 00

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE	
1		. WATER WASH SCREEN	1		PAOZZ	

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Page 1

### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

#### **SERVICING - MLG TIRE**

### **Reference Material**

	Aircraft Tires and	Tubes	NAVAIR	04-10-506
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## **Alphabetical Index**

Subject	Page No.
Materials Required	2
MLG Tire Servicing, Figure 1	3
Servicing	2
Support Equipment Required	1

## **Record of Applicable Technical Directives**

None

### **Support Equipment Required**

None

## **Materials Required**

None

### 1. SERVICING.

**WARNING** 

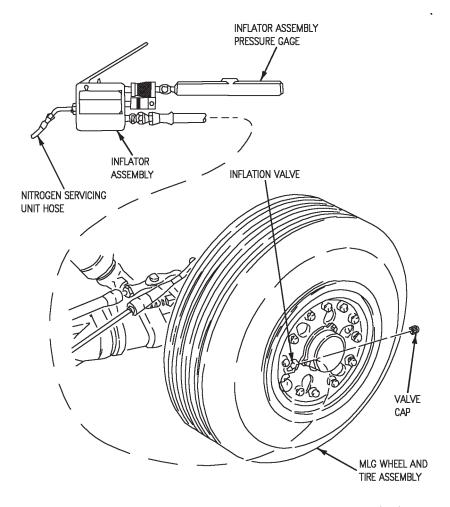
To prevent death or injury to personnel, always go toward MLG tire from forward or aft direction, never from the side. Never go near MLG tire if suspected to be overheated because of long taxi or continued brake application.

- a. Approach MLG tire from forward or aft direction.
- b. Service MLG tire (NAVAIR 04-10-506) to correct inflation pressure per substeps below:
- (1) If mission is to start, stop over or end on an aircraft carrier, inflate MLG tires to 345 to 355 psig.
- (2) If mission includes only ashore operations on semiprepared fields, inflate MLG tires to 245 to 255 psig.
- $\,$  (3) If mission includes only a shore operations on prepared fields, inflate MLG tires to 245 to 255 psig.

## A1-F18AC-LMM-000

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18AC-LMM-00-(53-1)34-SCAN

Figure 1. MLG Tire Servicing

026 00

Change 5 - 1 July 1998

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **SERVICING - NLG TIRE**

This WP supersedes WP026 00, dated 1 September 1996.

### **Reference Material**

Aircraft Tires and Tubes	NAVAIR	04-10-506
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### **Alphabetical Index**

Subject	Page No.
Materials Required	2
NLG Tire, Figure 1	4
Servicing	2
Support Equipment Required	2

### **Record of Applicable Technical Directives**

None

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### **Support Equipment Required**

None

### **Materials Required**

None

#### 1. SERVICING.



To prevent death or injury to personnel, always go toward NLG tire from forward or aft direction, never from the side.

a. Approach NLG tire from forward or aft direction.

#### NOTE

Tire pressure differentials shall not be greater than 10 psig.

- b. Service NLG tire (NAVAIR 04-10-506) to correct inflation pressure per substeps below:
- $\,$  (1) If mission includes only a shore operations on prepared field, inflate NLG tires 145 to 155 psig.

Change 5 Page 3

026 00

#### NOTE

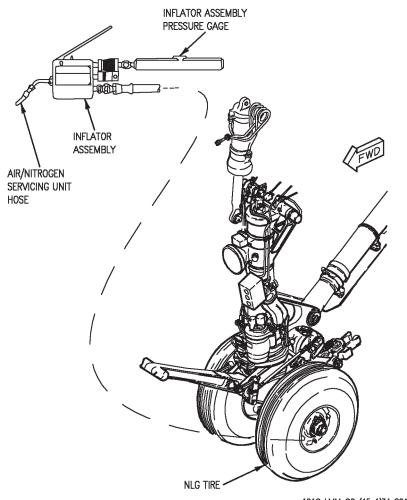
Tire pressure tolerance listed supersedes maximum allowable tolerance of NAVAIR 04-10-506.

(2) If mission involves carrier operations or is to start, stopover, or end on a semi-prepared field, inflate NLG tires 370 to 380 psig.

026 00

Change 5

Page 4



18AC-LMM-00-(45-1)34-SCAN

Figure 1. NLG Tire

027 00

Change 3 - 1 July 1997

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### MLG WHEEL AND TIRE ASSEMBLY

#### **Reference Material**

Aircraft Tires and Tubes	NAVAIR 04-10-506
Landing Gear and Related Systems	A1-F18AC-130-300
Multiple Disk Brake	WP064 00

## **Alphabetical Index**

Subject	Page No
Materials Required	2
Removal and Installation	2
Installation	5
Removal	3
Support Equipment Required	2

027 00

Page 2

### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
IAFC 002	24 Feb 82	Improvement of Main Landing Gear Axle Nut Bolt Retention (ECP MDA-F/A-18-00086)	1 Mar 82	-
IAFC 002 Amend. No. 1	26 Mar 82	Improvement of Main Landing Gear Axle Nut Bolt Retention (ECP MDA-F/A-18-00086)	1 Apr 82	-

#### 1. REMOVAL AND INSTALLATION.

### **Support Equipment Required**

None

### **Materials Required**

Specification or Part Number

**Nomenclature** 

MS24665-132

Cotter Pin

#### 2. REMOVAL.

#### NOTE

This procedure is typical for left or right MLG wheel and tire assembly.

- a. Make sure electrical and hydraulic power are off (WP004  $\,00$  and WP009  $\,00).$ 
  - b. Jack MLG axle lever assembly (WP038 00).
  - c. Deflate MLG tire (NAVAIR 04-10-506).
- d. Remove hub cap assembly (7, figure 1, WP028 00) with bolts (6) and attaching parts.
  - e. Remove bolt (1), with washers (2), nut (4), and cotter pin (5).
  - f. Remove nut (9).
  - g. Remove washer (10).
  - h. Remove MLG wheel and tire assembly (3) from MLG axle.
- i. Mark a straight chalkline across multiple disk brake assembly rotors and stators to serve as positioning index when reinstalling MLG wheel and tire assembly (3).
  - j. Remove ring (11) and inspect for the following conditions:
- (1) If grease seal has worn through hard coat on both ends, replace ring (11).

- (2) If hard coat is chipping, replace ring (11).
- (3) If grease seal has worn through hard coat on one end only, reverse ring (11) on installation.
- k. Visually inspect MLG wheel and tire assembly (3). Replace MLG wheel and tire assembly (3) if any of the conditions below exist:
- (1) Fuse plugs have released, heat or other damage to wheel is visible.
  - (2) Deformed, cracked or loose rotor drive key.
  - (3) Buckled or separated heat shield.
  - (4) Loose or broken wheel half attach bolts.
- l. Visually inspect multiple disk brake. Replace multiple disk brake if any of the conditions below exist (A1-F18AC-130-300, WP064 00):



Multiple disk brake rotors and stators will absorb grease, hydraulic fluid and cleaning fluid which can result in performance degradation or brake smoking. Caution must be used to prevent multiple disk brake rotors or stators from becoming contaminated.

(1) Contaminated rotors or stators.

#### NOTE

The faces of the carbon pressure plate and backing plate may have voids up to 0.063 inch deep covering 10% of each face and cracks up to 2.0 inches in length (no more than four cracks per face) before brake replacement is required.

Replacement of multiple disk brake is not required if only protective caps are found loose or broken. Protective cap is considered loose if rivet holes are elongated such that the distance between rotor and end of protective cap (dimension X, figure 1, WP028 00) is greater than 0.15 inch.

- (2) Remove loose or broken protective caps, if necessary.
- (3) Broken, missing, or cracked brake components.
- (4) Hydraulic leaks and loose or missing lockwire.
- (5) Loose bolts.
- (6) If auxiliary stator shield is installed, auxiliary stator shield can be displaced radially (by hand) such that the shield periphery extends beyond the auxiliary stator outside diameter more than 0.18 inch (detail F).

#### 3. INSTALLATION.

a. Visually inspect MLG wheel and tire assembly (3, figure 1, WP028 00). Replace MLG wheel and tire assembly (3) if any of the conditions below exist:

#### Change 3

- (1) Deformed, cracked or loose rotor drive key.
- (2) Buckled or separated heat shield.
- (3) Loose or broken wheel half attach bolts.
- (4) Inspect for main landing gear (MLG) retreaded Goodrich tires. The Goodrich tires can be identified by the Goodrich name molded onto the sidewall. Identify retreaded tires by the retreaders name "AIR TREADS" molded in the shoulder area close to the tread. All MLG retreaded Goodrich tires shall be removed from the aircraft and scrapped in condition code "H". All new tires and Goodyear retreaded tires are considered "RFI" authorized for use.

# CAUTION

To prevent brake smoking or brake fires due to build up in internal cavity, any excess grease must be wiped off MLG axle, ring and MLG wheel and tire assembly before installation of MLG wheel and tire assembly.

- b. Wipe off any excess grease from MLG axle, ring (11) and MLG wheel and tire assembly (3).
- c. Remove sharp edges and burrs from MLG axle, washer (10) and nut (9).

Change 3

027 00 Page 6A/(6B blank)



To prevent accelerated brake wear, rotors must be in same relative position as indexed by chalkline when MLG wheel and tire assembly was removed.

Make sure keyways are lined up to prevent damage of carbon or anti-oxidation shield during installation of MLG wheel and tire assembly.

d. Make sure rotors are all aligned with chalkline before installation of MLG wheel and tire assembly (3).

- e. Install ring (11) on MLG axle.
- f. Install MLG wheel and tire assembly (3) on MLG axle.
- g. Install washer (10).
- h. Install nut (9) per substeps below:



Damage will occur to axle and wheel bearing if end play exist in MLG wheel and tire assembly.

- (1) If set, release parking brake by rotating EMERG BRK/PARK BRK control 45° CCW, push in then turn CW.
- (2) Tighten nut (9) while rotating MLG wheel and tire assembly (3), until no end play exists.
- (3) Tighten nut (9), one more hex flat (60°) to seat wheel bearing.
- (4) Loosen nut (9) one hex flat  $(60^{\circ})$ , then tighten nut (9) to next locking feature  $(45^{\circ} \text{ maximum})$  only.
- $\left(5\right)$  Shake MLG wheel and tire assembly  $\left(3\right)$  and check that no end play exists.
- (6) If end play exists, tighten nut (9) one more locking feature only. Check again that no end play exists. If end play exists, loosen nut (9) and repeat step h.

(7) Make sure transducer alignment pad is installed in notch in MLG axle.



To prevent damage to motion pickup transducer and/or hub cap assembly, bolt must be installed with head of bolt inside of axle.

#### NOTE

MLG axle assembly has two axle alignment holes for installing bolt (1). Bolt (1) will be installed in axle alignment hole which aligns with nearest castellation in nut (9).

- i. Install bolt (1), with washer (2) under head of bolt, through axle alignment hole and hole in motor pickup transducer (12) with head of bolt inside axle as shown in detail A or detail B if configuration X exists.
- j. Install washer (2) and nut (4) on bolt (1). Tighten nut (4). Tighten until snug. Do not over tighten.
  - k. Safety nut (4) with cotter pin (5).
  - l. Replace packing (8) on hub cap assembly (7) if deteriorated.

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To prevent damage to motion pickup transducer and/or hub cap assembly, force must not be used when engaging hub cap assembly to motion pickup transducer drive clip.

- m. Carefully engage hub cap assembly (7) to motion pickup transducer drive clip. Position hub cap assembly (7) to align with mounting holes in MLG wheel and tire assembly (3).
  - n. Install washers and bolts (6). Tighten bolts (6).
  - o. Service MLG tire (WP025 00).
  - p. Lower MLG axle lever assembly and remove jack (WP038 00).
- q. Rotate EMERG BRK/PARK BRK control  $90\,^\circ$  CCW and pull to set parking brake.

Change 5 - 1 July 1998

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **IPB - MLG WHEEL AND TIRE ASSEMBLY**

## **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 IAFC 002	24 Feb 82	Improvement of Main Landing Gear Axle Nut Bolt Re- tention (ECP MDA- F/A-18-00086)	1 Mar 82	-
IAFC 002 Amend. No. 1	26 Mar 82	Improvement of Main Landing Gear Axle Nut Bolt Re- tention (ECP MDA- F/A-18-00086)	1 Apr 82	-

028 00

Page 2

#### 1. INTRODUCTION.

2. Removal, installation and repair for MLG wheel and tire assembly is in WP027 00. Index numbers in this WP match those in WP027 00.

#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

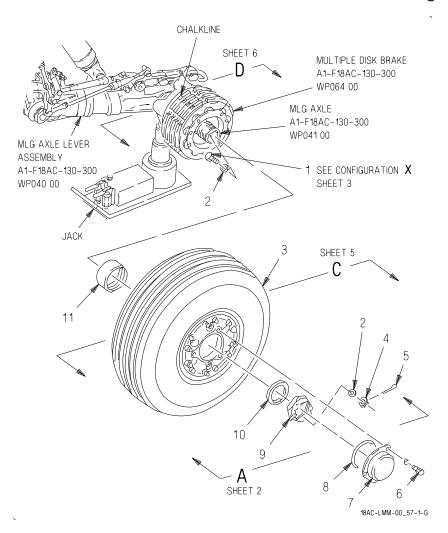
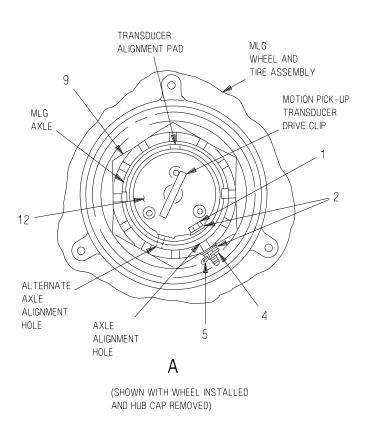


Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 1)



18 A C - L M M - 00 \_ 57 - 2 - 55

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 2)

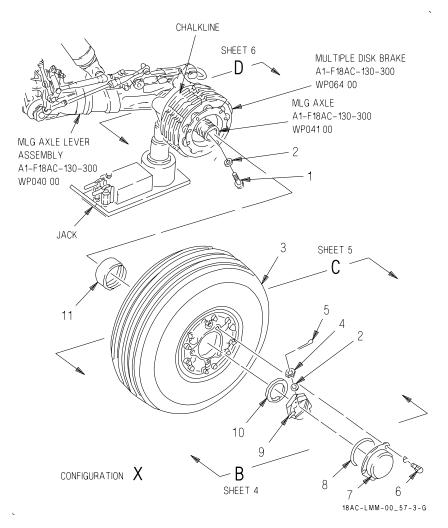
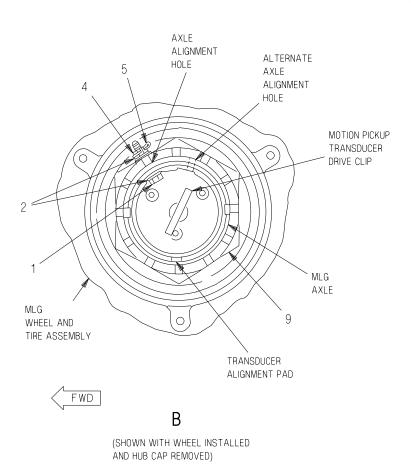


Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 3)



18AC-LMM-00\_57-4-G

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 4)

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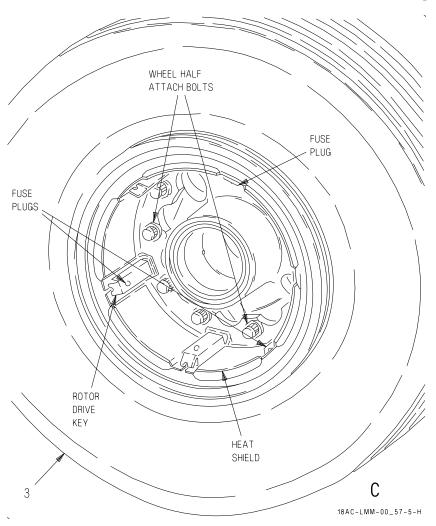
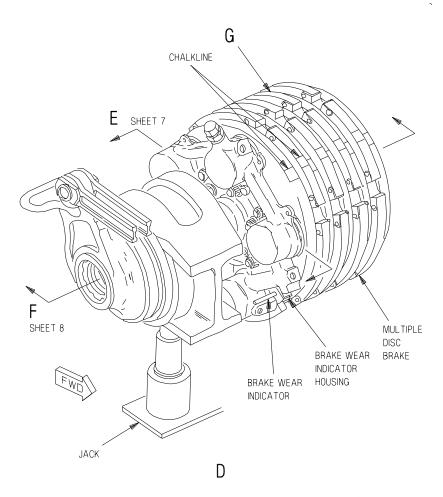
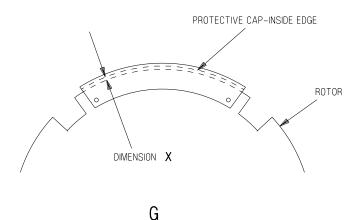


Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 5)



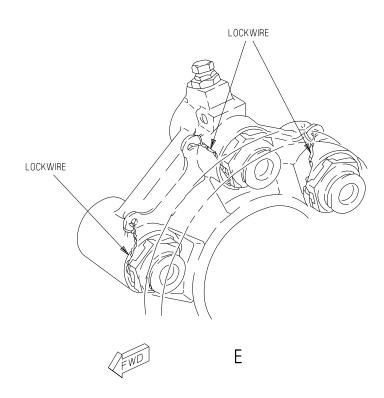
18AC-LMM-00\_57-6-56

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 6)



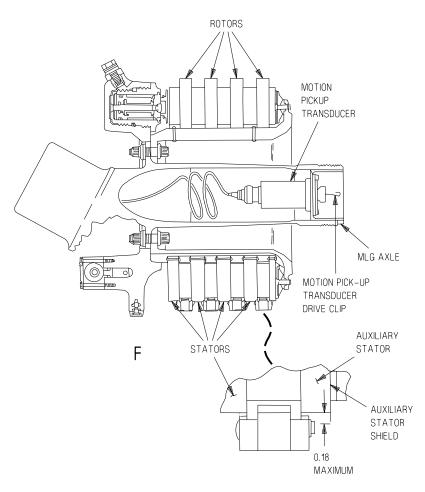
18AC-LMM-00\_57-6.1-56

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 7)



18 A C - L M M - 00 \_ 57 - 7 - G

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 8)



18AC-LMM-00\_57-8-G

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 9)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		MLG WHEEL AND TIRE ASSEMBLY REMOVAL AND INSTALLATION			
1	NAS1303-9D	. BOLT	1		PAOZZ
2	NAS1149D0363J	. WASHER	2	*	PAOZZ
	AN960JD10	. WASHER	2	*	PAOZZ
3	74A411700-1009	. WHEEL, LANDING GEAR - MAIN, TIRED (MLG WHEEL AND TIRE ASSEMBLY) (76301)	1		AGOGD
	74A411700-1007	. SEE ABOVE (REPLACES	1	*	AGOGD
	74A411700-1005	. WHEEL, LANDING GEAR - MAIN, TIRED (MLG WHEEL AND TIRE ASSEMBLY) (76301) (USE UNTIL EXHAUSTED)	1	A	AGOGD
4	79318CM-1032	. NUT, SELF-LOCKING, EXTENDED WASHER, HEXAGON, SLOTTED (56878) (MCDONNELL SPEC ST3M788-3)	1	*	PAOZZ
	E12589-3	. SEE ABOVE	1	*	PAOZZ
5	MS24665-132	. PIN, COTTER			PAOZZ
6	VS3207-3-2	. BOLT, CLOSE TOLERANCE (92215) (MCDONNELL SPEC ST3M731-3-2)	3	*	PAOZZ
	SC2663-3-2	. BOLT, CLOSE TOLERANCE (06950) (MCDONNELL SPEC ST3M731-3-2)	3	*	PAOZZ
	PBF1264-3-2	. BOLT, CLOSE TOLERANCE (27624) (MCDONNELL SPEC ST3M731-3-2)	3	*	PAOZZ
	111364-3-2	. BOLT, CLOSE TOLERANCE	3	*	PAOZZ
	NAS1149D0316J	. WASHER (USE WITH INDEX 6)	3	*	PAOZZ
	AN960JD10LL	. SEE ABOVE	3	*	PAOZZ
7	40-97534-2	. HUB CAP ASSEMBLY	1		PAOZZ

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 10)

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Page 13/(14 blank)

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
8	MS28775-247	. PACKING	1		PAOZZ
9	74A410534-2003	NUT, PLAIN, SLOTTED, HEXAGON AXLE, MLG (76301) (REPLACES 74A410534-2001)			PAOZZ
	74A410534-2001	. NUT, PLAIN, SLOTTED,	1	В	PAOZZ
10	74A410533 - 2001	. WASHER, KEY - AXLE, MAIN LANDING GEAR (76301)	1		PAOZZ
11	74A411605-2001	. SPACER RING (76301)	1		PAOZZ
12	40-97510-1	. TRANSDUCER, MOTION PICKUP WHEEL SPEED, SKID CONTROL (MOTION PICKUP TRANSDUCER) (81982) (MCDONNELL SPEC 74-410054-217) (13MTP006 OR 13MTR005)	1		PAOZZ

<sup>\*</sup> ALTERNATE OR EQUIVALENT PARTS. (WP002 00)

CODE	USABLE ON	MODEL
A	161353 THRU 161519	F/A-18A/B
В	161353 THRU 161736	F/A-18A/B

Figure 1. MLG Wheel and Tire Assembly Removal and Installation (Sheet 11)

## 029 00

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### NLG WHEEL AND TIRE ASSEMBLY

#### **Reference Material**

Aircraft Tires and Tubes.......NAVAIR 04-10-506

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Illustration	9
Parts List	12
Removal and Installation	2
Installation	6
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Subject	Page No.
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Support Equipment Required	2
NLG Wheel and Tire Assembly Removal and	
Installation, Figure 1	9

### **Record of Applicable Technical Directives**

None

### 1. REMOVAL AND INSTALLATION.

### **Support Equipment Required**

None

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## **Materials Required** NOTE

Alternate item part numbers are shown indented.

Specification or Part Number	Nomenclature
MS20995NC32	Lockwire
(CAGE 96906)	
MIL-S-81733	Sealing Compound
TYIV 12	(Sealant)
(CAGE 80244)	
MIL-S-83430	
CLA-1/2	
(CAGE 80244)	
020X413	Cleaning Compound
(CAGE 85570)	
CCC-C-440	Cloth, Cheesecloth
TYPE 1 CLASS 1	,
(CAGE 81348)	
(011012 01010)	

**U29 UU** Page 4

2. REMOVAL.

Change 1

# CAUTION

If removal is resulting from blown NLG tire, both NLG wheel and tire assemblies must be removed. Retaining mating NLG wheel and tire assembly on aircraft can only lead to catastrophic failure.

#### NOTE

This procedure is typical for left or right NLG wheel and tire assembly.

- a. Make sure electrical and hydraulic power are off (WP004  $\,$ 00 and WP009  $\,$ 00).
  - b. Jack NLG (WP038 00).
  - c. Deflate NLG tire (NAVAIR 04-10-506).
  - d. Remove bolts (5, figure 1) and key washer (4).
  - e. Remove nut (6).
  - f. Remove washer (3).
  - g. Remove spacer (2).
- h. Remove NLG wheel and tire assembly (1) from NLG cylinder and piston assembly.

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Page 5

i. If removal is resulting from a blown NLG tire, conspicuously mark the blown tire and its mating tire "BLOWN TIRE SET: CONDEMN AT I-LEVEL."  $^{\prime\prime}$ 

#### NOTE

Visually inspect removed NLG wheel assemblies to ensure spacers (2 and 7) are not attached. Spacers are to be retained for visual inspection and possible reinstallation with new wheel assemblies.

- j. Remove spacer (7) and scrape off old sealing compound with a nonmetallic scraper.
  - k. Inspect spacers (2 and 7) for the conditions below: (QA)
- (1) If grease seal has worn grooves or worn through hard coating on both ends, replace spacer (2 or 7).
  - (2) If hard coating is chipping, replace spacer (2 or 7).
- (3) If grease seal has worn grooves or worn through hard coating on one end only, reverse spacer (2 or 7) on installation.

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3. INSTALLATION.



NLG wheel and tire assemblies shall be installed as matched set. Do not intermix new/retread tires. Tire diameters shall not differ more than 0.25 inch. (Refer to NAVAIR 04-10-506.)

Intermixing of 20PR and 22PR nose tires is not authorized. Intermixing of 20PR and 22PR nose tire may result in tire failure. (Refer to NAVAIR 04-10-506.)

- a. Make sure electrical and hydraulic power are off (WP004  $\,$ 00 and WP009  $\,$ 00).
- b. Clean and visually inspect NLG cylinder and piston assembly axle and nut  $(6, \ \text{figure 1})$  for sharp edges or burrs. (QA)

Change 10

## WARNING

Cleaning compound is flammable liquid and vapor. May cause allergic respiratory and skin reaction. May cause eye, skin and respiratory irritation. Keep away from heat, sparks, and flame. Do not breathe dust (vapor, mist, gas). Use only with adequate ventilation. Keep container closed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- c. Clean all surfaces on axle and spacer (7) requiring sealing compound with clean cheesecloth moistened in cleaning compound (Detail A).
  - d. Repeat step c until no dirt or oil is visible on cheesecloth.
  - e. Allow to air dry for 15 minutes.

### **WARNING**

Sealing compound is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

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#### NOTE

Sealing compound does not require cure time for this application.

f. Apply thin coat of sealing compound with brush to axle surface as shown in Details A and B.



Make sure spacer is replaced during reassembly of NLG wheel. Failure to do so could result in severe damage to or catastrophic failure of NLG axle or wheel assembly during take off or landing.

#### **NOTE**

Outboard and inboard side of spacer must remain free of sealing compound.

g. Install inboard spacer (7) firmly against axle flange and make sure no sealing compound squeezes out between axle flange and spacer (7). (QA)

Change 7

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Page 7



NLG wheel and tire assemblies shall be installed as matched set. Do not intermingle new/retread tires. Tire diameters shall not differ more than 0.25 inch. (Refer to NAVAIR 04-10-506.)

h. Install NLG wheel and tire assembly (1) on NLG cylinder and piston assembly.



Make sure spacer is replaced during reassembly of NLG wheel. Failure to do so could result in severe damage to or catastrophic failure of NLG axle or wheel assembly during take off or landing.

- i. Install spacer (2). (QA)
- j. Install washer (3). (QA)
- k. Install nut (6) per substeps below: (QA)
- (1) Rotate NLG wheel and tire assembly (1) while tightening nut (6) until there is no end play and NLG wheel and tire assembly (1) becomes harder to turn.
- (2) Loosen nut (6) until NLG wheel and tire assembly (1) rotates freely and there is no end play.

#### NOTE

Nut locking features are 60° apart.

- (3) Rotate NLG wheel and tire assembly (1) and tighten nut (6) until key washer (4) can be installed. Do not rotate nut (6) more than 15°.
- (4) Rotate NLG wheel and tire assembly (1), if hard to rotate, loosen nut (6) 15°.
  - (5) Install key washer (4), bolts (5) and safety with lockwire.



To prevent damage to NLG axle or wheel assembly, keywasher should not be in direct contact with wheel hub when installed.

- (6) Make sure keywasher (4) is not in direct contact with wheel hub.
  - 1. Service NLG tire (WP026 00). (QA)
  - m. Lower NLG (WP038 00).

### 4 ILLUSTRATED PARTS BREAKDOWN.

5. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

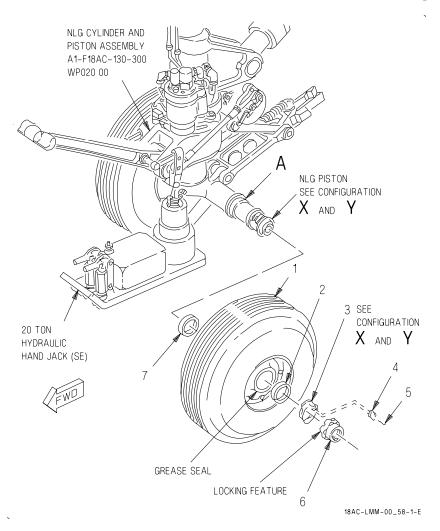


Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 1)

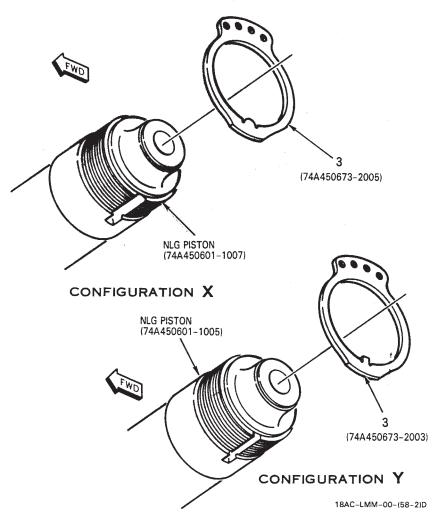
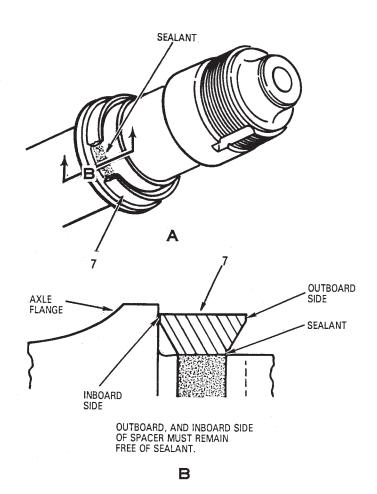


Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 2)



18AC-LMM-00-(58-3)F

Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 3)

029 00

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1	74A451100-1003	NLG WHEEL AND TIRE ASSEMBLY	1		AGOGD
	74A451100-1001	. SEE ABOVE (USE UNTIL	1	C	AGOGD
2	74A450672-2003	. SPACER, RING (76301) (REPLACES 74A450672-2001) (NHPA 74A450600-1009, 74A450600-1011, 74A450600-1013, 74A450600-1015, 74A450600-1017, 74A450600-1019; SM&R CODE PAOGD)	1		PAOZZ
	74A450672-2001	. SPACER, RING (76301) (USE	1	A	PAOZZ
3	74A450673-2005 Ø	. WASHER, KEY (76301) (NHPA	1		PAOZZ
4	74A450673-2003 † 74A450669-2001	. WASHER, KEY (76301)	1	В	PAOZZ PAOZZ
5	NAS6303U1H	BOLT	2		PAOZZ

Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 4)

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
6	74A450617-2001	NUT, AXLE - SHOCK ABSORBER,  NLG (76301) (NHPA 74A450600-1009, 74A450600-1011, 74A450600-1013, 74A450600-1015, 74A450600-1017, 74A450600-1019; SM&R CODE PAOGD)	1		PAOZZ
7	74A450671 - 2003	. SPACER, RING (76301) (REPLACES 74A450671-2001) (NHPA 74A450600-1009, 74A450600-1011, 74A450600-1013, 74A450600-1015, 74A450600-1017, 74A450600-1019; SM&R CODE PAOGD)	1		PAOZZ
	74A450671 - 2001	. SPACER, RING (76301) (USE	1	A	PAOZZ
		† 74A450673-2003 WASHER MUST BE USED WITH NLG CYLINDER AND PISTON ASSEMBLY PISTON 74A450601-1005			
		0 74A450673-2005 WASHER MUST BE USED WITH NLG CYLINDER AND PISTON ASSEMBLY PISTON 74A450601-1007			

Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 5)

029 00

INDEX NO.	PART NUMBER	1 2 3	DESCRIPTION 4 5 6 7		UNITS PER ASSY	USE ON CODE	SM&R CODE
		CODE	USABLE ON	МО	DEL		
		A	PN 74A450600-1009				
		В	PN 74A450600-1009, 74A450600-1011 & 74A450600-1013				
		С	161353 THRU 163175	F/A-	18A/B		

Figure 1. NLG Wheel and Tire Assembly Removal and Installation (Sheet 6)

15 April 1996

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### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

## **SERVICING - MLG SHOCK ABSORBER**

Title	WP Number
Servicing - MLG Shock Absorber,	
74A410820	030 01
Servicing - MLG Shock Absorber,	
74A410850	$030 \ 02$

030 01

15 April 1996

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **SERVICING - MLG SHOCK ABSORBER**

**EFFECTIVITY: 74A410820** 

## Reference Material

None

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MLG Shock Absorber, Figure 1	16

Part Number or

# 030 01

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Materials Required	3
Servicing (Weight-Off-Wheels)	11
Servicing (Weight-On-Wheels)	4
Servicing Test	3
Support Equipment Required	2

## **Record of Applicable Technical Directives**

None

## **Support Equipment Required**

Type Designation	Nomenclature
MIL-G-8348,	Air Pressure Gage
Class A, Size 1	Assembly
630AS100-11	Hydraulic Hand Pump
	Fluid Service Unit
215-00303-50	Multi-Purpose
	Aircraft Component
	Handling Dolly
1317AS100-1	Nitrogen Servicing Unit

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# **Support Equipment Required (Continued)**

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)

## **Materials Required**

Specification or Part Number	Nomenclature
MIL-H-83282 (CAGE 81349)	Hydraulic Fluid
MS20995NC32 (CAGE 96906)	Lockwire

## 1. SERVICING TEST.

- a. Read and record gage pressure indicated on shock absorber.
- b. Using table, locate gage pressure recorded in step a and determine the X dimension (table 1). Record this X dimension.

- c. Measure and record true X dimension (figure 1, detail A) on shock absorber.
- d. If X dimension recorded in step c is within 0.10 inch of X dimension recorded in step b, servicing is not required. If X dimension recorded in step c is not within 0.10 inch of X dimension recorded in step b, servicing is required.

## 2. SERVICING (WEIGHT-ON-WHEELS).

# **WARNING**

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

To prevent injury to personnel and damage to MLG shock absorber, parking brake must be released.



To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of  $-65^{\circ}$ F or lower must be used to service shock absorber.

To prevent damage to aircraft structure, if aircraft tiedowns are installed, make sure tie downs are loose enough to allow MLG shock absorber servicing without causing tension on tiedowns.

- a. Make sure parking brake is released.
- b. Remove valve cap (1, figure 1).
- c. Loosen swivel nut on air charge valve (2) 2-1/2 turns maximum and slowly bleed off nitrogen charge.
  - d. Service shock absorber with hydraulic fluid per substeps below:
    - (1) Remove air charge valve (2) from shock absorber.



To prevent contamination of hydraulic system, fluid service unit must be serviced with MIL-H-83282 hydraulic fluid.

- $\,$  (2) Make sure fluid service unit is correctly serviced with MIL-H-83282 hydraulic fluid.
- (3) Install MLG shock absorber filler adapter (3) into shock absorber where air charge valve (2) was located.
  - (4) Put adapter hose into container to catch overflow.
  - (5) Connect fluid service unit supply hose to adapter (3).
- (6) Fill shock absorber until overflow fluid pours freely from drain hose.
  - (7) Wait 5 minutes for air bubbles to escape.
- (8) Fill shock absorber until overflow fluid pours freely from drain hose.
  - (9) Disconnect fluid service unit supply hose from adapter (3).
  - (10) Remove adapter (3) from shock absorber.

- (11) Reinstall air charge valve (2) on shock absorber. Torque air charge valve (2) body 100 to 110 inch-pounds and safety with lockwire. (QA)
- (12) Make sure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).
  - e. Service shock absorber with nitrogen per substeps below:
    - (1) Connect nitrogen servicing unit hose to gage assembly.
    - (2) Connect gage assembly to air charge valve (2).
- (3) Make sure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).
- (4) Turn on nitrogen servicing unit to inflate shock absorber until fully extended (X dimension of 5.21 inches, detail A).
  - (5) Turn off nitrogen servicing unit.
- (6) Slowly open bleed valve on gage assembly to bleed off nitrogen charge from shock absorber until X dimension starts to decrease, then close bleed valve.
  - (7) Read and record pressure on gage assembly.
- (8) Using table, locate gage pressure recorded in substep e(7) and determine the X dimension (table 1). Record this X dimension.

- (9) Slowly open bleed valve on gage assembly to bleed off nitrogen from shock absorber until X dimension measured on shock absorber is within 0.06 inch of X dimension recorded in substep e(8).
- (10) Close air charge valve (2) swivel nut and torque 50 to 70 inch-pounds. (QA)  $\,$
- (11) Slowly open bleed valve on gage assembly until nitrogen is bled, then close bleed valve.
  - (12) Disconnect gage assembly from air charge valve (2).
  - (13) Install valve cap (1) on air charge valve (2) handtight.

Table 1. MLG Shock Absorber Servicing Test

Gage Pressure	X Dimension	Gage Pressure	X Dimension	Gage Pressure	X Dimension
PSIG	Inches	PSIG	Inches	PSIG	Inches
Compressed	.09	2280	.87	2050	.99
2500	.77	2270	.87	2040	1.00
2500	.77	2270	.87	2040	1.00
2490	.77	2260	.88	2030	1.00
2480	.78	2250	.88	2020	1.01
2470	.78	2240	.89	2010	1.01
2460	.79	2230	.89	2000	1.02
2450	.79	2220	.90	1990	1.03
2440	.79	2210	.90	1980	1.03
2430	.80	2220	.91	1970	1.04
2420	.80	2190	.91	1960	1.04
2410	.81	2180	.92	1950	1.05
2400	.81	2170	.92	1940	1.06
2390	.82	2160	.93	1930	1.06
2380	.82	2150	.94	1920	1.07
2370	.83	2140	.94	1910	1.07
2360	.83	2130	.95	1900	1.08
2350	.84	2120	.95	1890	1.09
2340	.84	2110	.96	1880	1.09
2330	.85	2100	.96	1870	1.10
2320	.85	2090	.97	1860	1.10
2310	.86	2080	.97	1850	1.11
2300	.86	2070	.98	1840	1.12
2290	.86	2060	.98	1830	1.13

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Table 1. MLG Shock Absorber Servicing Test (Continued)

Gage Pressure	X Dimension	Gage Pressure	X Dimension	Gage Pressure	X Dimension
PSIG	Inches	PSIG	Inches	PSIG	Inches
1820	1.14	1600	1.31	1380	1.54
1810	1.14	1590	1.32	1370	1.55
1800	1.15	1580	1.33	1360	1.56
1790	1.16	1570	1.34	1350	1.58
1780	1.16	1560	1.35	1340	1.59
1770	1.17	1550	1.36	1330	1.60
1760	1.18	1540	1.37	1320	1.62
1750	1.19	1530	1.38	1310	1.63
1740	1.19	1520	1.39	1300	1.64
1730	1.20	1510	1.39	1290	1.65
1720	1.21	1500	1.41	1280	1.66
1710	1.22	1490	1.42	1270	1.68
1700	1.23	1480	1.43	1260	1.69
1690	1.23	1470	1.44	1250	1.71
1680	1.24	1460	1.45	1240	1.72
1670	1.25	1450	1.46	1230	1.73
1660	1.26	1440	1.47	1220	1.75
1650	1.27	1430	1.48	1210	1.76
1640	1.27	1420	1.49	1200	1.78
1630	1.28	1410	1.50	1190	1.79
1620	1.29	1400	1.51	Extended	
1610	1.30	1390	1.53	225	5.21

## 3. SERVICING (WEIGHT-OFF-WHEELS).

a. Jack aircraft (WP038 00).

# WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2 1/2 turns.



To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of -65°F or lower must be used.

a1. Remove valve cap (1, figure 1).

b. Loosen swivel nut on air charge valve (2) 2-1/2 turns maximum and slowly bleed off nitrogen charge.



To prevent damage to aircraft, caution must be used not to overjack MLG axle lever assembly or aircraft may be lifted off aircraft jacks.

- c. Using multi-purpose aircraft component handling dolly, carefully jack MLG until shock absorber is fully compressed (X dimension of 0.09 inch, detail A) per substeps below:
- (1) Install MLG shock absorber jack adapter (4) on multipurpose aircraft component handling dolly.
- (2) Position multi-purpose aircraft component handling dolly under MLG jack pad.
- (3) Carefully jack MLG until shock absorber is fully compressed (X dimension of 0.09 inch).
  - d. Service shock absorber with hydraulic fluid per substeps below:
    - (1) Remove air charge valve (2) from shock absorber.



To prevent contamination of hydraulic system, fluid service unit must be serviced with MIL-H-83282 hydraulic fluid.

- (2) Make sure service unit is correctly serviced with MIL-H-83282 hydraulic fluid.
- (3) Install MLG shock absorber filler adapter (3) into shock absorber where air charge valve (2) was located.
  - (4) Put adapter hose into container to catch overflow.
  - (5) Connect fluid service unit supply hose to adapter (3).
- (6) Fill shock absorber until overflow fluid pours freely from drain hose.
  - (7) Wait 5 minutes for air bubbles to escape.
- (8) Fill shock absorber until overflow fluid pours freely from drain hose.
  - (9) Disconnect fluid service unit supply hose from adapter (3).
  - (10) Remove adapter (3) from shock absorber.

- (11) Reinstall air charge valve (2) on shock absorber. Torque air charge valve (2) body 100 to 110 inch-pounds and safety with lockwire. (QA)
- (12) Make sure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).



To prevent damage to shock absorber, MLG axle lever assembly must be lowered slowly.

- e. Slowly lower and remove dolly from MLG axle lever assembly.
- f. Service shock absorber with nitrogen per substeps below:
  - (1) Connect nitrogen servicing unit hose to gage assembly.
  - (2) Connect gage assembly to air charge valve (2).
- (3) Make sure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).
- $\,$  (4) Turn on nitrogen servicing unit to inflate shock absorber to 220 to 230 psig.
- (5) Close air charge valve (2) swivel nut and torque 50 to 70 inch-pounds. (QA)  $\,$

- (6) Turn off nitrogen servicing unit.
- (7) Slowly open bleed valve on gage assembly until nitrogen is bled, then close bleed valve.
  - (8) Disconnect gage assembly from air charge valve (2).
  - (9) Install valve cap (1) on air charge valve (2) handtight.

## 4. ILLUSTRATED PARTS BREAKDOWN.

5. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

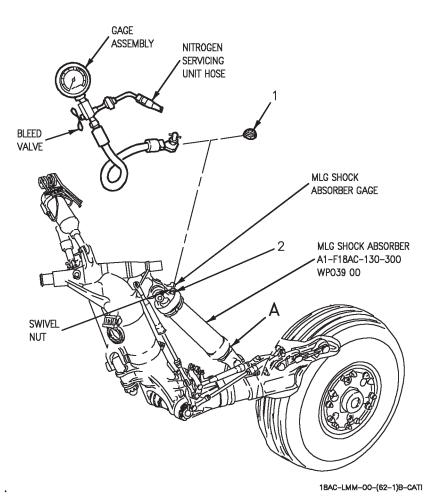
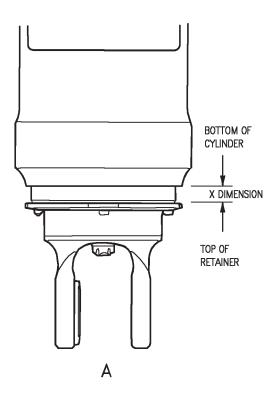


Figure 1. MLG Shock Absorber (Sheet 1)



18AC-LMM-00-(62-2)B-CATI

Figure 1. MLG Shock Absorber (Sheet 2)

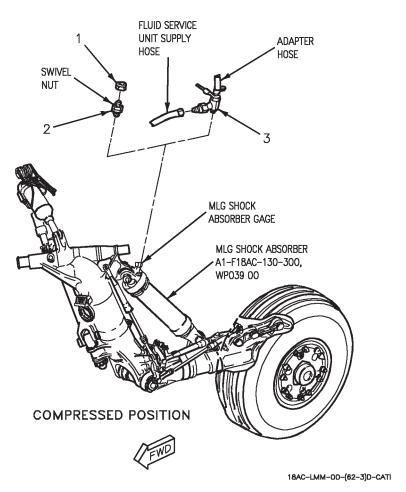
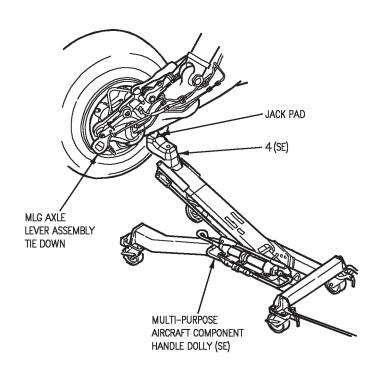


Figure 1. MLG Shock Absorber (Sheet 3)



18AC-LMM-00-(62-4)C-CATI

Figure 1. MLG Shock Absorber (Sheet 4)

030 01

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		MLG SHOCK ABSORBER			
1	MS20813-1	. CAP	1		PAZZZ
2	MS28889-2	. VALVE (AIR CHARGE VALVE)	1		PAOZZ
3	74D130026-1001	. ADAPTER - FILLER, SHOCK  ABSORBER, MLG (76301) (SUPPORT EQUIPMENT)	1		PAOZZ
4	74D130035-1001	. ADAPTER - JACK, SHOCK	1		PAOBZ

Figure 1. MLG Shock Absorber (Sheet 5)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **SERVICING - MLG SHOCK ABSORBER**

**EFFECTIVITY: 74A410850** 

## Reference Material

None

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## **Record of Applicable Technical Directives**

None

## **Support Equipment Required**

Type Designation	Nomenclature
MIL-G-8348, Class A, Size 1	Air Pressure Gage Assembly
630AS100-11	Hydraulic Hand Pump Fluid Service Unit

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# **Support Equipment Required (Continued)**

Part Number or Type Designation	Nomenclature
215-00303-50	Multi-Purpose
	Aircraft Component
	Handling Dolly
1317AS100-1	Nitrogen Servicing Unit
74D130026-1001	Main Landing Gear Shock
	Absorber Filler Adapter
-	Torque Wrench, 0 to 150
	Inch-Pounds
74D130035-1001	Adapter - Jack,
	Shock Absorber, MLG

# **Materials Required**

Specification or Part Number	Nomenclature
MIL-PRF-83282 (CAGE 81349)	Hydraulic Fluid
MS20995NC32	Lockwire
(CAGE 96906) 277C	Leak Test Compound
(CAGE 03530) MIL-G-4343	Pneumatic Systems
(CAGE 81349)	Grease
MS28778-4	Packing

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#### Materials Required (Continued)

Specification or Part Number	Nomenclature
CCC-C-440 TY1CL1 (CAGE 81348)	Cheesecloth
-	1/4" I.D. Clear Polyethylene Tubing 60 Inches Long
AN807-4J	Adapter
(CAGE 88044)	
ST9M442-1	Clamp, Hose
(CAGE 08484)	

#### 1. SERVICING TEST.

- a. Determine and record aircraft weight per substeps below:
  - (1) Preferred use NAVAIR 01-1B-40.
  - (2) Alternate do displaying aircraft weight, WP049 00.
- b. Using table, locate aircraft weight recorded in step a and determine the gage pressure and X dimension (table 1). Record this pressure and X dimension.

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# WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

- c. Remove valve cap (1) from low pressure air charge valve (2).
- d. Connect gage assembly (4) to low pressure air charge valve (2).

# WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- e. Loosen swivel nut on low pressure air charge valve (2).
- f. Read and record true gage pressure indicated on shock absorber.

recorded in step b, servicing is required.

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Change 7 g. If pressure recorded in step f is not within 100 psig of pressure

- h. Measure and record true X dimension (figure 1, detail A) on shock absorber.
- i. If X dimension recorded in step h is within 0.25 inch of X dimension recorded in step b, servicing is not required. If X dimension recorded in step h is not within 0.25 inch of X dimension recorded in step b, servicing is required.
- j. If servicing is not required close low pressure air charge valve (2) swivel nut.
  - k. Disconnect gage assembly from low pressure air charge valve (2).
  - l. Install valve cap (1).

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Table 1. MLG Shock Absorber Servicing Test

Absorber Servicing Test		
X Dimension	Gage Pressure	Aircraft Weight
	851	51900
	849	51800
7-3/8	848	51700
	846	51600
	845	51500
	843	51400
	842	51300
	840	51200
	839	51100
	837	51000
	836	50900
	834	50800
7-7/16	833	50700
	831	50600
	830	50500
	828	50400
	827	50300
	825	50200
	824	50100
	823	50000
	822	49900
7-1/2	820	49800
	819	49700
	817	49600
	816	49500

Table 1. MLG Shock Absorber Servicing Test (Continued)

Aircraft Weight	Gage Pressure	X Dimension
49400 49300	814 813	7.1/2
49300 49200	812	7-1/2
49200 49100	811	
49100	809	
49000	809	
48900	808	
48800	806	
48700	804	
48600	803	
48500	801	
48400	800	7-9/16
48300	799	
48200	798	
48100	796	
48000	795	
47900	795	
47800	793	
47700	791	
47600	790	
47500	787	
47400	786	
47300	785	7-5/8
47200	783	, -
47100	782	
47000	781	

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Table 1. MLG Shock Absorber Servicing Test (Continued)

(Continued)		
Aircraft Weight	Gage Pressure	X Dimension
46900 46800 46700 46600	780 777 776 775	7-5/8
46500 46400 46300 46200 46100 46000 45900 45800 45700 45600 45500	773 772 771 770 767 766 765 764 763 761	7-11/16
45400 45300 45200 45100 45000 44900 44800 44700 44600	758 756 755 754 753 751 749 748 747	7-3/4

Table 1. MLG Shock Absorber Servicing Test (Continued)

Aircraft Weight	Gage Pressure	X Dimension
44500 44400 44300 44200 44100 44000 43900 43800 43700	746 743 742 741 739 738 737 735 734	7-13/16
43600 43500 43400 43300 43200 43100 43000 42900 42800 42700	732 731 730 728 727 726 724 723 721 720	7-7/8
42600 42500 42400 42300 42200	719 717 716 715 713	7-15/16

Table 1. MLG Shock Absorber Servicing Test (Continued)

(Continuea)		
Aircraft Weight	Gage Pressure	X Dimension
42100 42000 41900 41800 41700	712 711 709 708 707	7-15/16
41600 41500 41400 41300 41200 41100 41000 40900 40800 40700	705 703 702 700 698 697 696 694 693 692	8
40600 40500 40400 40300 40200 40100 40000 39900	690 689 688 686 684 683 682 680	8-1/16
39800 39700	678 677	8-1/8

Table 1. MLG Shock Absorber Servicing Test (Continued)

Aircraft Weight	Gage Pressure	X Dimension
39600 39500 39400 39300 39200 39100	676 674 673 672 671 669	8-1/8
39000 38900 38800 38700 38600 38500 38400 38300	667 666 665 664 662 661 660 658	8-3/16
38200 38100 38000 37900 37800 37700 37600 37500 37400	656 655 655 653 651 649 648 647 646	8-1/4
37300 37200	644 642	8-5/16

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Table 1. MLG Shock Absorber Servicing Test (Continued)

(Continued)		
Aircraft Weight	Gage Pressure	X Dimension
37200 37000 36900 36800 36700	640 639 639 637 636	8-5/16
36600 36500 36400 36300 36200 36100 36000	634 633 632 630 629 627 625	8-3/8
35900 35800 35700 35600 35500 35400 35300	623 622 622 620 619 617 615	8-7/16
35200 35100 35000 34900 34800 34700	614 612 611 611 609 607	8-1/2

Table 1. MLG Shock Absorber Servicing Test (Continued)

	•	-
Aircraft Weight	Gage Pressure	X Dimension
34600 34500	606 604	8-1/2
34400 34300 34200 34100 34000	603 601 600 598 597	8-9/16
33900 33800 33700 33600 33500 33400 33300 33200	597 595 594 592 591 589 588 586	8-5/8
33100 33000 32900 32800 32700 32600	585 583 582 580 579 578	8-11-/16
32500 32400 32300 32200	576 575 573 572	8-3/4

Table 1. MLG Shock Absorber Servicing Test (Continued)

(Continuea)		
Aircraft Weight	Gage Pressure	X Dimension
32100 32000 31900	571 569 568	8-3/4
31800 31700 31600 31500 31400 31300	566 565 564 563 561 560	8-13/16
31200 31100 31000 30900 30800 30700	559 558 556 555 553 552	8-7/8
30600 30500 30400 30300 30200 30100	551 550 548 547 546 545	8-15/16
30000 29900 29800 29700	544 542 541 540	9

Table 1. MLG Shock Absorber Servicing Test (Continued)

Aircraft Weight	Gage Pressure	X Dimension
29600 29500	539 537	9
29400 29300 29200 29100 29000 28900	536 534 533 532 529 528	9-1/16
28800 28700 28600 28500 28400 28300	527 526 525 524 523 522	9-1/8
28200 28100 28000 27900 27800	521 520 518 516 515	9-3/16
27700 27600 27500 27400 27300 27200	514 512 511 510 509 508	9-1/4

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Table 1. MLG Shock Absorber Servicing Test (Continued)

		,
Aircraft Weight	Gage Pressure	X Dimension
27100 27000 26900 26800 26700	506 505 504 503 501	9-5/16
26600 26500 26400 26300 26200 26100	500 499 497 496 495 494	9-3/8
26000 25900 25800 25700 25600	493 492 491 489 488	9-7/16
25500 25400 25300 25200 25100 25000	487 486 485 484 482 481	9-1/2

Table 1. MLG Shock Absorber Servicing Test (Continued)

(,		
Aircraft Weight	Gage Pressure	X Dimension
24900 24800 24700 24600 24500	480 479 478 476 475	9-9/16
24400 24300 24200 24100 24000	474 473 472 470 469	9-5/8
23900 23800 23700 23600 23500	468 467 466 464 463	9-11/16
23400 23300 23200 23100 23000	462 462 461 459 458	9-3/4
22900 22800 22700	457 456 455	9-13/16

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#### 2. PREFERRED SERVICING (WEIGHT-OFF-WHEELS).

a. Jack aircraft (WP038 00).

#### WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

b. If installed, remove valve caps (1, figure 1).

# WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- c. Loosen swivel nut on low pressure air charge valve (2) 2-1/2 turns maximum and slowly bleed off nitrogen charge.
- d. Loosen swivel nut on high pressure air charge valve (3) 2-1/2 turns maximum and slowly bleed off nitrogen charge.

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# CAUTION

To prevent damage to aircraft, caution must be used not to over jack MLG axle lever assembly or aircraft may be lifted off aircraft jacks.

- e. Using multi-purpose aircraft component handling dolly, carefully jack MLG until shock absorber is fully compressed (X dimension of  $6\text{-}1/32\ \pm 1/32$  inches, detail A) per substeps below:
- (1) Install MLG shock absorber jack adapter (6) on multi-purpose aircraft component handling dolly.
- (2) Position multi-purpose aircraft component handling dolly under MLG jack pad.

# WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.

(3) Using cheesecloth moistened in hydraulic fluid wipe pistons on MLG shock absorber.

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(4) Carefully jack MLG until shock absorber is fully compressed (X dimension of  $6-1/32 \pm 1/32$  inches).

# WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.

- f. Service shock absorber with hydraulic fluid per substeps below:
- (1) Remove low pressure air charge valve (2) from shock absorber.
- (2) Remove MLG shock absorber gage and dispose of packing (5).

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### WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



To prevent contamination of hydraulic system, fluid service unit must be serviced with MIL-PRF-83282 hydraulic fluid.

- (3) Make sure service unit is correctly serviced with MIL-PRF-83282 hydraulic fluid.
- (4) Install MLG shock absorber filler adapter into shock absorber where low pressure air charge valve (2) was located.
  - (5) Put adapter hose into container to catch overflow.
  - (6) Connect fluid service unit supply hose to adapter.
  - (7) Install plastic hose on adapter with clamp.
  - (8) Install adapter into gage port.
- (9) Fill shock absorber until clear, air free fluid flows from plastic tubing in gage port.
  - (10) Remove adapter from gage port.

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- (11) Coat new packing (5) with grease and install on MLG shock absorber gage.
  - (12) Install gage until packing (5) contacts MLG shock absorber.
  - (13) Hold gage and torque nut 72 to 120 inch-pounds. (QA)
  - (14) Disconnect fluid service unit supply hose from adapter.
  - (15) Remove adapter from shock absorber.
- (16) Reinstall low pressure air charge valve (2) on shock absorber. Torque low pressure air charge valve (2) body 100 to 110 inch-pounds and safety with lockwire. (QA)

#### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(17) Make sure low pressure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).

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# CAUTION

To prevent damage to shock absorber, MLG axle lever assembly must be lowered slowly.

- g. Slowly lower and remove dolly from MLG axle lever assembly.
- h. Service low pressure chamber with nitrogen per substeps below:
  - (1) Connect nitrogen servicing unit hose to gage assembly (4).
- (2) Connect gage assembly (4) to low pressure air charge valve (2).

### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(3) Make sure low pressure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).

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To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of  $-65^{\circ}$ F or lower must be used to service shock absorber.

- (4) Turn on nitrogen servicing unit to inflate low pressure chamber to 140 to 160 psig.
- (5) Close low pressure air charge valve (2) swivel nut and torque 50 to 70 inch-pounds. (QA)
  - (6) Turn off nitrogen servicing unit.
- (7) Slowly open bleed valve on gage assembly (4) until nitrogen is bled, then close bleed valve.
- (8) Disconnect gage assembly (4) from low pressure air charge valve (2).
- (9) Install valve cap (1) on low pressure air charge valve (2) handtight.

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## WARNING

To prevent injury to personnel when servicing high pressure piston with nitrogen, area surrounding high pressure piston must be clear of personnel and obstructions.

- i. Service high pressure chamber with nitrogen per substeps below:
- (1) Connect gage assembly (4) to high pressure air charge valve (3).

#### **WARNING**

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(2) Make sure high pressure air charge valve (3) swivel nut is full open (2-1/2 turns maximum).

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To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of -65°F or lower must be used to service shock absorber.

- (3) Turn on nitrogen servicing unit to inflate high pressure chamber to 1270 to 1310 psig.
- (4) Close high pressure air charge valve (3) swivel nut and torque 50 to 70 inch-pounds. (QA)
  - (5) Turn off nitrogen servicing unit.
- (6) Slowly open bleed valve on gage assembly (4) until nitrogen is bled, then close bleed valve.
- (7) Disconnect gage assembly (4) from high pressure air charge valve (3).
- (8) Install valve cap (1) on high pressure air charge valve (3) hand tight.
- (9) Apply leak test compound to air charge valve (2), MLG shock absorber gage and check for leaks.

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3. ALTERNATE SERVICING (WEIGHT-ON-WHEELS).

WARNING

To prevent injury to personnel and damage to MLG shock absorber, parking brake must be released.

a. Make sure parking brake is released.

**WARNING** 

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

b. If installed, remove valve caps (1, figure 1).

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#### **WARNING**

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- c. Loosen swivel nut on low pressure air charge valve (2) 2-1/2 turns maximum and slowly bleed off nitrogen charge.
- d. Loosen swivel nut on high pressure air charge valve (3) 2-1/2 turns maximum and slowly bleed off nitrogen charge.
  - e. Service shock absorber with hydraulic fluid per substeps below:
- (1) Remove low pressure air charge valve (2) from shock absorber.
- (2) Remove MLG shock absorber gage and dispose of packing (5).

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# WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



To prevent contamination of hydraulic system, fluid service unit must be serviced with MIL-PRF-83282 hydraulic fluid.

- (3) Make sure fluid service unit is correctly serviced with MIL-PRF-83282 hydraulic fluid.
- (4) Install MLG shock absorber filler adapter into shock absorber where low pressure air charge valve (2) was located.
  - (5) Put adapter hose into container to catch overflow.
  - (6) Connect fluid service unit supply hose to adapter.
  - (7) Install plastic hose on adapter with clamp.
  - (8) Install adapter into gage port.
- (9) Fill shock absorber until clear, air free fluid overflows from plastic tubing in gage port.

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- (10) Remove adapter from gage port.
- (11) Coat new packing (5) with grease and install or MLG shock absorber gage.
  - (12) Install gage until packing (5) contacts MLG shock absorber.
  - (13) Hold gage and torque nut 72 to 120 inch-pounds. (QA)
  - (14) Disconnect fluid service unit supply hose from adapter.
  - (15) Remove adapter from shock absorber.
- (16) Reinstall low pressure air charge valve (2) on shock absorber. Torque low pressure air charge valve (2) body 100 to 110 inch-pounds and safety with lockwire. (QA)

#### **WARNING**

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- (17) Make sure low pressure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).
  - f. Service shock absorber with nitrogen per substeps below:
    - (1) Connect nitrogen servicing unit to gage assembly (4).
    - (2) Connect gage assembly to high pressure air charge valve (3).

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#### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(3) Make sure high pressure air charge valve (3) swivel nut is fully open (2-1/2 turns maximum).



To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of -65°F or lower must be used to service shock absorber.

To prevent damage to aircraft structure, if aircraft tiedowns are installed, make sure tiedowns are loose enough to allow MLG shock absorber servicing without causing tension on tiedowns.

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- (4) Turn on nitrogen servicing unit to inflate high pressure chamber until fully extended (X dimension of 10.28  $\pm$ 0.25 inches, detail A)
  - (5) Close high pressure air charge valve (3) swivel nut.
  - (6) Turn off nitrogen servicing unit.



Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.

- (7) Using cheesecloth moistened in hydraulic fluid, wipe shock absorber piston.
- (8) While rocking aircraft wings to override friction, do substeps below:



MLG shock absorber pressure may be serviced incorrectly if bleed valve on external gage (4) is not opened slightly.

(a) Slightly open high pressure air charge valve swivel nut to bleed off nitrogen charge from high pressure chamber until X dimension starts to decrease.

#### NOTE

Initial pressure on external gage (4) will be high, then drop off and stabilize as X dimension decreases.

- (b) Observe gage assembly (4) and allow X dimension to continue to decrease until pressure indication on gage assembly stabilizes.
  - (c) Read and record this test pressure.
- (9) Allow high pressure chamber to fully compress (X dimension of 6-1/32  $\pm$ 1/32 inches).
- (10) Disconnect gage assembly (4) from high pressure air charge valve (3).
- (11) Connect gage assembly (4) to low pressure air charge valve (2).

#### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(12) Make sure low pressure air charge valve (2) swivel nut is fully open (2-1/2 turns maximum).

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To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of  $-65^{\circ}$  F or lower must be used to service shock absorber.

To prevent damage to aircraft structure, if aircraft tiedowns are installed, make sure tiedowns are loose enough to allow MLG shock absorber servicing without causing tension on tiedowns.

#### NOTE

Shock absorber must not extend while inflating low pressure chamber. If shock absorber does extend, aircraft is too light and weight off wheels servicing, procedure 2 must be used.

- $\left(13\right)$  Turn on nitrogen servicing unit to inflate low pressure chamber to 1590 to 1610 psig.
  - (14) Close low pressure air charge valve (2) swivel nut.
  - (15) Make sure shock absorber did not extend.
  - (16) Turn off nitrogen servicing unit.

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- (17) Slowly open bleed valve on gage assembly (4) until nitrogen is bled, then close bleed valve.
- (18) Disconnect gage assembly from low pressure air charge valve (2).
- (19) Connect gage assembly (4) to high pressure air charge valve (3).

### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

(20) Make sure high pressure air charge valve (3) swivel nut is fully open (2-1/2 turns maximum).



To prevent possible corrosion in shock absorber air chamber, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of  $-65^{\circ}$ F or lower must be used to service shock absorber.

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To prevent damage to aircraft structure, if aircraft tiedowns are installed, make sure tiedowns are loose enough to allow MLG shock absorber servicing without causing tension on tiedowns.

- (21) Turn on nitrogen servicing unit to inflate high pressure chamber unit fully extended (X dimension of 10.28±0.25 inches).
  - (22) Close high pressure air charge valve (3) swivel nut.
  - (23) Turn off nitrogen servicing unit.
- $\left(24\right)$  Slowly open bleed valve on gage assembly  $\left(4\right)$  until nitrogen is bled, then close bleed valve.
  - (25) Disconnect nitrogen servicing unit from gage assembly.
- (26) Disconnect gage assembly (4) from high pressure air charge valve (3).
- (27) Connect gage assembly (4) to low pressure air charge valve (2).

#### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- (28) Open low pressure air charge valve (2) swivel nut (2-1/2 turns maximum).
- (29) Make sure gage assembly (4) indicates 380 to 460 psig. If gage assembly (4) does not indicate 380 to 460 psig, repeat steps c thru f(29).
- (30) Close low pressure air charge valve (2) swivel nut and torque 50 to 70 inch-pounds. (QA)
- (31) Slowly open bleed valve on gage assembly (4) until nitrogen is bled, then close bleed valve.
- (32) Disconnect gage assembly (4) from low pressure air charge valve (2).
- (33) Install valve cap (1) on low pressure air charge valve (2) handlight.
- (34) Using table, locate test pressure recorded in substep f(8)(c) and determine the X dimension (table 2). Record this X dimension.

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(35) Connect gage assembly (4) to high pressure air charge valve (3).

#### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- (36) Open high pressure air charge valve (3) swivel nut (2-1/2 turns maximum).
- (37) While rocking aircraft wings to override friction, slowly open bleed valve on gage assembly (4) to bleed off nitrogen from high pressure chamber until X dimension measured on shock absorber is within 1/16 inch of X dimension recorded in substep f(34).
- (38) Close high pressure air charge valve (3) swivel nut and torque 50 to 70 inch-pounds. (QA)
- (39) Slowly open bleed valve on gage assembly (4) until nitrogen is bled, then close bleed valve.
- (40) Disconnect gage assembly (4) from high pressure air charge valve (3).
- (41) Install valve cap (1) on high pressure air charge valve (3) handtight.

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(42) Apply leak test compound to air charge valve (2), MLG shock absorber gage and check for leaks.

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Table 2. MLG Shock Absorber Servicing Pressures

Test Pressure	X Dimension
PSIG	Inches
2960 2950	
2940	
2930	7-7/16
2920	
2910	
2900	
2890	
2880	
2870	
2860	7-1/2
2850	
2840	
2830	
2820	
2810	
2800	
2790	7-9/16
2780	
2770	
2760	

Table 2. MLG Shock Absorber Servicing Pressures (Continued)

Test Pressure	X Dimension
PSIG	Inches
2750	
2740	
2730	
2720	7-5/8
2710	
2700	
2690	
2680	
2670	
2660	
2650	7-11/16
2640	
2630	
2620	
2610	
2600	
2590	7-3/4
2580	
2570	

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Table 2. MLG Shock Absorber Servicing Pressures (Continued)

i i coourco	(Continued)
Test Pressure	X Dimension
PSIG	Inches
2560 2550 2540 2530 2520	7-13/16
2510 2500 2490 2480 2470	7-7/8
2460 2450 2440 2430	7-15/16
2420 2410 2400 2390 2380	8

#### Table 2. MLG Shock Absorber Servicing Pressures (Continued)

	(00111111111111111111111111111111111111
Test Pressure	X Dimension
PSIG	Inches
2370	
2360	
2350	
2340	8-1/16
2330	
2320	
2310	
2300	8-1/8
2290	
2280	
2270	
2260	8-3/16
2250	
2240	
2230	
2220	
2210	8-1/4
2200	

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# Table 2. MLG Shock Absorber Servicing Pressures (Continued)

110334103	(Continued)
Test Pressure	X Dimension
PSIG	Inches
2190 2180	
2170 2160 2150 2150	8-5/16
2140 2130 2120	8-3/8
2110 2100 2090	8-7/16
2080 2070 2060 2050	8-1/2
2040 2030 2020	8-9/16

#### Table 2. MLG Shock **Absorber Servicing** Pressures (Continued)

Test Pressure	χ Dimension
PSIG	Inches
2010	
2000	8-5/8
1990	
1980	
1970	8-11/16
1960	
1950	
1940	8-3/4
1930	
1920	
1910	8-3/16
1900	
1890	
1880	8-7/8
1870	
1860	
1850	8-15/16
1840	

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#### Table 2. MLG Shock Absorber Servicing Pressures (Continued)

110334103	(Jonanaca)
Test Pressure	X Dimension
PSIG	Inches
1830 1820 1810	9
1800 1790 1780	9-1/16
1770 1760 1750	9-1/8
1740 1730 1720	9-3/16
1710 1700	9-1/4
1690 1680	9-5/16
1670	9-3/8
1660	

#### Table 2. MLG Shock Absorber Servicing Pressures (Continued)

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(**************************************	
Test Pressure	X Dimension
PSIG	Inches
1650 1640 1630	9-7/16
1620 1610	9-1/2
1600 1590	9-9/16
1580 1570	9-5/8
1560 1550	9-11/16

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Table 2. MLG Shock Absorber Servicing Pressures (Continued)

Test Pressure	X Dimension
PSIG	Inches
1540 1530	9-3/4

#### Table 2. MLG Shock Absorber Servicing Pressures (Continued)

Test Pressure	X Dimension
PSIG	Inches
1510	9-3/4
Extended 1290	10.28

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#### 4. ILLUSTRATED PARTS BREAKDOWN.

5. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

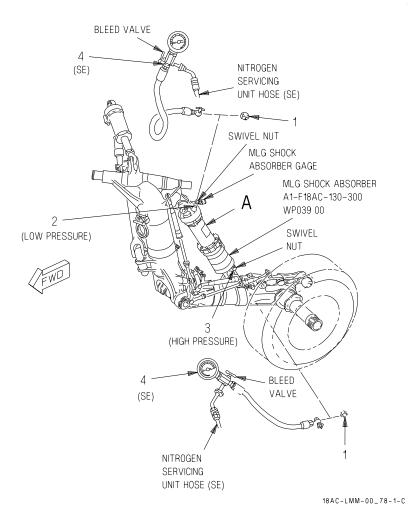
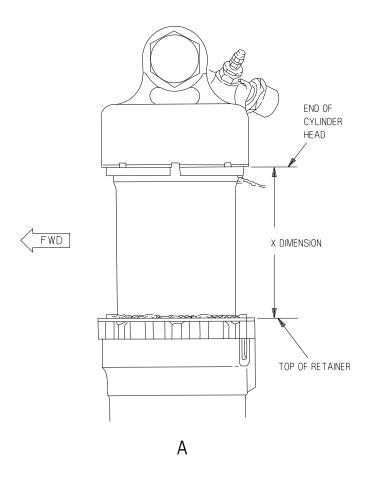


Figure 1. MLG Shock Absorber (Sheet 1)



18 A C - L M M - 00 \_ 78 - 2 - A

Figure 1. MLG Shock Absorber (Sheet 2)

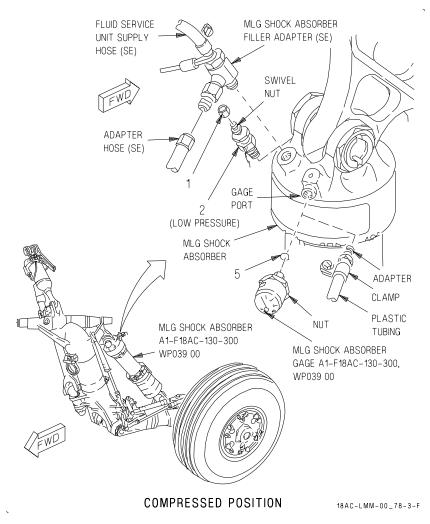
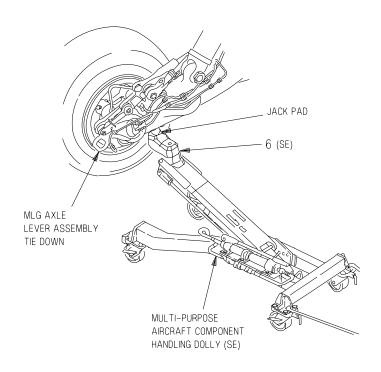


Figure 1. MLG Shock Absorber (Sheet 3)



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Figure 1. MLG Shock Absorber (Sheet 4)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		MLG SHOCK ABSORBER			
1	MS20813-1	. CAP	2		PAZZZ
2	MS28889-2	. VALVE (AIR CHARGE)	1		PAOZZ
3	MS28889-2	. VALVE (AIR CHARGE)	1		PAOZZ
4	MILG8348CLASSASIZE1	. GAGE, PRESSURE DIAL INDICATING (GAGE ASSEMBLY) (SUPPORT EQUIPMENT)	1		PAOZZ
5	MS28778-4	. PACKING	1		PAOZZ
6	74D130035-1001	. ADAPTER - JACK, SHOCK	1		PAOBZ

Figure 1. MLG Shock Absorber (Sheet 5)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### SERVICING - NLG CYLINDER AND PISTON ASSEMBLY

This WP supersedes WP031 00, dated 15 April 1996.

#### **Reference Material**

Landing Gear and Related Systems	A1-F18AC-130-300
NLG Cylinder and Piston Assembly	
Components	WP021 00

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Part Number or

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#### **Record of Applicable Technical Directives**

None

### 1. PREFERRED SERVICING (WEIGHT OFF WHEELS).

### **Support Equipment Required**

Type Designation	Nomenclature
MIL-G-8348, Class A, Size 2 MIL-G-8348, Class A, Size 3 T71622	Dial Indicating Pressure Gage Dial Indicating Pressure Gage NLG Bleeder Nonmetallic Hose Assembly
	11000 1100011101

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# **Support Equipment Required (Continued)**

Nomenclature
Hydraulic Hand Pump Fluid
Service Unit
20 Ton Hydraulic
Hand Jack
Nitrogen Servicing
$\operatorname{Unit}$
Torque Wrench,
0 to 120
Inch-Pounds

### **Materials Required**

Specification or Part Number	Nomenclature
MIL-PRF-83282 (CAGE 81349)	Hydraulic Fluid

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### **WARNING**

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on high pressure and low pressure air charge valves must be fully closed (tightened clockwise) before removing valve caps (1, figure 1).

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to high pressure and low pressure air charge valves, swivel nut must not be loosened more than 2-1/2 turns.

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



To prevent possible corrosion in NLG cylinder and piston assembly, only nitrogen BB-N-411, Type 1, Class 1, Grade B or if nitrogen is not available, clean dry air filtered through 10 micron filter with a dew point of -65°F or lower must be used to service NLG cylinder and piston assembly.

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CAUTION

To prevent damage to NLG cylinder and piston assembly, high pressure chamber inflation servicing must be done before servicing low pressure chamber.

#### NOTE

High pressure gage must indicate pressure shown on Table 1,  $\pm 50$  psig. Low pressure gage must indicate pressure shown on Table 1,  $\pm 0$ ,  $\pm 20$  psig. If either gage does not indicate specified pressure, inflation servicing of both chambers in the sequence specified is required.

- a. If hydraulic fluid leakage does not exist around NLG cylinder and piston assembly piston, high pressure gage, low pressure gage, high pressure air charge valve, low pressure air charge valve or hydraulic fluid filler valve (figure 1), go to step b. If leakage does exist, service NLG cylinder and piston assembly with hydraulic fluid per substeps below:
- (1) Make sure high pressure air charge valve swivel nut is tight (closed) and remove cap (1).
- (2) Slowly loosen (open) high pressure air charge valve swivel nut and slowly relieve pressure. Keep high pressure air charge valve open.
- (3) Make sure swivel nut on low pressure air charge valve is closed and remove cap (1).
- (4) Connect size 3 dial indicating pressure gage to low pressure air charge valve.

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- (5) Connect nitrogen servicing unit hose to size 3 dial indicating pressure gage.
- (6) Open low pressure air charge valve and increase pressure to low pressure chamber to 75 psig to make sure high pressure piston is positioned correctly.
  - (7) Close low pressure air charge valve.
  - (8) Turn off nitrogen servicing unit.
- (9) Slowly open size 3 dial indicating pressure gage bleed valve and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (10) Remove size 3 dial indicating pressure gage from low pressure air charge valve and nitrogen servicing unit hose.
- (11) Wait 5 minutes minimum for hydraulic fluid to settle to bottom of NLG cylinder and piston assembly.
- (12) Slowly open low pressure air charge valve and slowly relieve pressure. Keep low pressure air charge valve open.
- (13) Connect NLG bleeder nonmetallic hose assembly (2) to low pressure air charge valve and position hose in a container to catch overflow hydraulic fluid.

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To prevent damage to aircraft, use caution not to over jack NLG cylinder and piston assembly or aircraft may be lifted off aircraft jacks.

- (14) Using 20 ton hydraulic hand jack, carefully compress NLG cylinder and piston assembly. Because of vertical travel required to fully compress NLG cylinder and piston assembly, do substeps below:
- (a) Position 20 ton hydraulic hand jack on blocks as required. Operate jack compressing NLG cylinder and piston assembly until jack is fully extended.
- (b) Position blocks under tire or NLG cylinder and piston assembly as required to keep compressed and lower jack.
- (c) Repeat substeps (a) and (b) until NLG cylinder and piston assembly is fully compressed.
  - (15) Remove cap (1) from hydraulic fluid filler valve.

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# **WARNING**

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



To prevent contamination of low pressure chamber, hydraulic hand pump fluid service unit must be serviced with MIL-PRF-83282 hydraulic fluid.

- (16) Connect hydraulic hand pump fluid service unit hose to hydraulic fluid filler valve.
- (17) Open hydraulic fluid filler valve. Using hydraulic hand pump fluid service unit, fill NLG cylinder and piston assembly until bubble-free hydraulic fluid flows from low pressure air charge valve.
- (18) Close hydraulic fluid filler valve and torque swivel nut 50 to 70 inch-pounds. Remove hydraulic hand pump fluid service unit hose and install cap (1) on hydraulic fluid filler valve handtight. (QA)
  - (19) Remove NLG bleeder nonmetallic hose assembly (2).
- (20) Using 20 ton hydraulic hand jack, slowly lower NLG cylinder and piston assembly until NLG cylinder and piston assembly is fully extended.
  - (21) Close low pressure air charge valve.

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- b. Service NLG cylinder and piston assembly high pressure chamber per substeps below:
- (1) If hydraulic fluid leakage did not exist in step a, make sure high pressure air charge valve is closed and remove cap (1).
- (2) Connect size 2 dial indicating pressure gage to high pressure air charge valve.
- (3) Connect nitrogen servicing unit hose to size 2 dial indicating pressure gage.
- (4) Loosen (open) high pressure air charge valve swivel nut and pressurize high pressure chamber to value shown on Table 1. Make sure high pressure gage indicates same pressure, ±50 psig, as size 2 dial indicating pressure gage. If high pressure gage is outside limits, it must be replaced (A1-F18AC-130-300, WP021 00).
- $\,$  (5) Close high pressure air charge valve and torque swivel nut 50 to 70 inch-pounds. (QA)
  - (6) Turn off nitrogen servicing unit.
- (7) Slowly open size 2 dial indicating pressure gage bleed valve and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (8) Remove size 2 dial indicating pressure gage from high pressure air charge valve and nitrogen servicing unit hose.
  - (9) Install cap (1) handtight on high pressure air charge valve.
  - c. Service low pressure chamber with nitrogen per substeps below:

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- (1) If hydraulic fluid leakage did not exist in step a, make sure swivel nut on low pressure air charge valve is closed and remove cap (1).
- (2) Connect size 3 dial indicating pressure gage to low pressure air charge valve.
- (3) Connect nitrogen servicing unit hose to size 3 dial indicating pressure gage.
- (4) Open low pressure air charge valve and pressurize low pressure chamber to value shown on Table 1. Make sure low pressure gage indicates same pressure, +0, -20 psig, as size 3 dial indicating pressure gage. If low pressure gage is outside limits, it must be replaced (A1-F18AC-130-300, WP021 00).
- (5) Close low pressure air charge valve and torque swivel nut 50 to 70 inch-pounds. (QA)
  - (6) Turn off nitrogen servicing unit.
- (7) Slowly open size 3 dial indicating pressure gage bleed valve and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (8) Remove size 3 dial indicating pressure gage from low pressure air charge valve and nitrogen servicing unit hose.

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(9) Install cap (1) on low pressure air charge valve handtight.

Table 1. NLG Inflation Pressures

Ambiont	Low Pressure Chamber		
Ambient Temperature F°	Weight on Wheels psig	Weight off Wheels psig	High Pressure Chamber psig
-30	243	56	597
-20	249	58	611
-10	255	60	625
0	260	61	639
+10	266	63	653
+20	272	65	667
+30	277	66	680
+40	283	68	694
+50	289	70	708
+60	294	71	722
+70	300	73	736
+80	306	75	750
+90	311	76	764
+100	317	78	778
+110	323	80	792
+120	328	81	805
+130	334	83	819

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### 2. ALTERNATE SERVICING (WEIGHT ON WHEELS).

### **Support Equipment Required**

Nomenclature
Dial Indicating
Pressure
Gage
Dial Indicating
Pressure
Gage
NLG Bleeder
Nonmetallic
Hose Assembly
Hydraulic Hand
Pump Fluid
Service Unit
Nitrogen Servicing
$\operatorname{Unit}$
Torque Wrench,
0 to 120
Inch-Pounds

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### **Materials Required**

Specification or Part Number

**Nomenclature** 

MIL-PRF-83282 (CAGE 81349) Hydraulic Fluid

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#### WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on high pressure and low pressure air charge valves must be fully closed (tightened clockwise) before removing caps (1, figure 1).

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to high pressure and low pressure air charge valves or hydraulic fluid filler valve, swivel nut must not be loosened more than 2-1/2 turns.

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.

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To prevent possible corrosion in NLG cylinder and piston assembly only nitrogen BB-N-411, Type 1, Class 1, Grade B or, if nitrogen is not available, clean dry air filtered through a 10 micron filter with a dew point of -65°F or lower must be used to service NLG cylinder and piston assembly.

To prevent damage to aircraft structure, if aircraft tiedowns are installed, make sure tiedowns are loose enough to allow NLG cylinder and piston assembly servicing without causing tension on tiedowns.

#### NOTE

High pressure gage must indicate pressure shown on Table 1,  $\pm 50$  psig. Low pressure gage must indicate pressure shown on Table 1,  $\pm 0$ ,  $\pm 20$  psig. If either gage does not indicate specified pressure, inflation servicing of both chambers in the sequence specified is required.

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- a. If hydraulic fluid leakage does not exist around NLG cylinder and piston assembly piston, high pressure gage, low pressure gage, low pressure air charge valve, high pressure air charge valve or hydraulic fluid filler valve (figure 1), go to step b. If leakage does exist, determine if hydraulic fluid servicing is required per substeps below:
- (1) Make sure low pressure air charge valve swivel nut is tight (closed) and remove cap (1).
- (2) Slowly loosen (open) low pressure air charge valve swivel nut and slowly bleed off nitrogen charge. Keep low pressure air charge valve open.
- (3) Make sure high pressure air charge valve is closed and remove cap (1).
- (4) Slowly open high pressure air charge valve and slowly bleed off nitrogen charge. Keep high pressure air charge valve open.
- (5) Connect size 3 dial indicating pressure gage to low pressure air charge valve.
- (6) Connect nitrogen servicing unit hose to size 3 dial indicating pressure gage and pressurize low pressure chamber to 221 psig. Close low pressure air charge valve.
  - (7) Turn off nitrogen servicing unit.
- (8) Slowly open bleed valve on size 3 dial indicating pressure gage and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.

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Change 7

- (9) Remove nitrogen servicing unit hose from size 3 dial indicating pressure gage.
- (10) Connect size 2 dial indicating pressure gage to high pressure air charge valve.
- (11) Connect nitrogen servicing unit hose to size 2 dial indicating pressure gage and pressurize high pressure chamber to value shown on Table 1. Close high pressure air charge valve.
  - (12) Turn off nitrogen servicing unit.
- (13) Slowly open bleed valve on size 2 dial indicating pressure gage and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (14) Remove nitrogen servicing unit hose from size 2 dial indicating pressure gage.
- (15) Open low pressure air charge valve and read low pressure chamber pressure on size 3 dial indicating pressure gage.
  - (16) Close low pressure air charge valve.
- (17) If low pressure chamber pressure, read in substep (15), is 195 to 205 psig, go to step b. If low pressure chamber pressure, read in substep (15), was not 195 to 205 psig, service NLG cylinder and piston assembly with hydraulic fluid per substeps below:
  - (a) Open size 2 dial indicating pressure gage bleed valve.

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- (b) Slowly open high pressure air charge valve to slowly relieve pressure, leave high pressure air charge valve open.
- (c) Connect nitrogen servicing unit hose to size 3 dial indicating pressure gage.
- (d) Open low pressure air charge valve and increase pressure to low pressure chamber as required to slowly inflate NLG cylinder and piston assembly until it extends to 6 inches above fully compressed position.
  - (e) Close low pressure air charge valve.
  - (f) Turn off nitrogen servicing unit.
- (g) Slowly open size 3 dial indicating pressure gage bleed valve and bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (h) Remove size 3 dial indicating pressure gage from low pressure air charge valve and nitrogen servicing unit hose.
- (i) Wait 5 minutes minimum for hydraulic fluid to settle to bottom of NLG cylinder and piston assembly.
- (j) Slowly open low pressure air charge valve to slowly relieve pressure and allow NLG cylinder and piston assembly to deflate to fully compressed position. Keep low pressure air charge valve open.

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- (k) Connect NLG bleeder nonmetallic hose assembly (2) to low pressure air charge valve and position hose in a container to catch overflow hydraulic fluid.
  - (l) Remove cap (1) from hydraulic fluid filler valve.

# WARNING

Hydraulic fluid may cause skin irritation. Avoid contact with skin and clothing. Wash thoroughly after handling.



To prevent contamination of low pressure chamber, hydraulic hand pump fluid service unit must be serviced with MIL-PRF-83282 hydraulic fluid.

- (m) Connect hydraulic hand pump fluid service unit hose to hydraulic fluid filler valve.
- (n) Open hydraulic fluid filler valve. Using service unit, fill NLG cylinder and piston assembly until bubble-free hydraulic fluid flows from low pressure air charge valve.
- (o) Close hydraulic fluid filler valve and torque swivel nut 50 to 70 inch-pounds. Remove hydraulic hand pump fluid service unit hose and install cap (1) on hydraulic fluid filler valve handtight. (QA)
- (p) Remove NLG bleeder nonmetallic hose assembly (2). Close low pressure air charge valve.

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# CAUTION

To prevent damage to NLG cylinder and piston assembly, high pressure chamber inflation servicing must be completed before servicing low pressure chamber.

- b. Service high pressure chamber per substeps below:
- (1) If hydraulic fluid leakage did not exist in step a, make sure swivel nut on high pressure air charge valve is tight (closed) and remove cap (1).
- (2) If not previously connected, connect size 2 dial indicating pressure gage to high pressure air charge valve.
- (3) Connect nitrogen servicing unit hose to size 2 dial indicating pressure gage, make sure bleed valve is closed.
- (4) Loosen (open) high pressure air charge valve swivel nut and pressurize high pressure chamber to value shown on Table 1. Make sure high pressure gage indicates same pressure, ±50 psig, as size 2 dial indicating pressure gage. If high pressure gage is outside limits, it must be replaced (A1-F18AC-130-300, WP021 00).
- $\left(5\right)$  Close high pressure air charge valve and torque swivel nut 50 to 70 inch-pounds. (QA)
  - (6) Turn off nitrogen servicing unit.
- (7) Slowly open bleed valve on size 2 dial indicating pressure gage and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.

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- (8) Remove size 2 dial indicating pressure gage from high pressure air charge valve and nitrogen servicing unit hose.
  - (9) Install cap (1) handtight on high pressure air charge valve.
  - c. Service low pressure chamber with nitrogen per substeps below:
- (1) If hydraulic fluid leakage did not exist in step a, make sure low pressure air charge valve is closed and remove cap (1).
- (2) If not previously connected, connect size 3 dial indicating pressure gage to low pressure air charge valve.
- (3) Connect nitrogen servicing unit hose to size 3 dial indicating pressure gage.
- (4) Open low pressure air charge valve and pressurize low pressure chamber to pressure on Table 1, or until NLG cylinder and piston assembly starts to extend above the static position. Make sure low pressure gage indicates same pressure, +0, -20 psig, as size 3 dial indicating pressure gage. If low pressure gage is outside limits, it must be replaced (A1-F18AC-130-300, WP021 00).
- $\left(5\right)$  Close low pressure air charge valve and torque swivel nut 50 to 70 inch-pounds. (QA)
  - (6) Turn off nitrogen servicing unit.
- (7) Slowly open bleed valve on size 3 dial indicating pressure gage and slowly bleed off nitrogen pressure in gage and nitrogen servicing unit hose. Close bleed valve.
- (8) Remove size 3 dial indicating pressure gage from low pressure air charge valve and nitrogen servicing unit hose.

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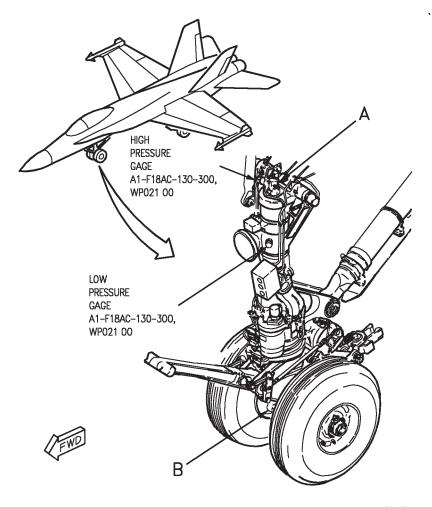
(9) Install cap (1) handtight on low pressure air charge valve.

#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

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18AC-LMM-00-(55-1)B-CATI

Figure 1. NLG Cylinder and Piston Assembly (Sheet 1)

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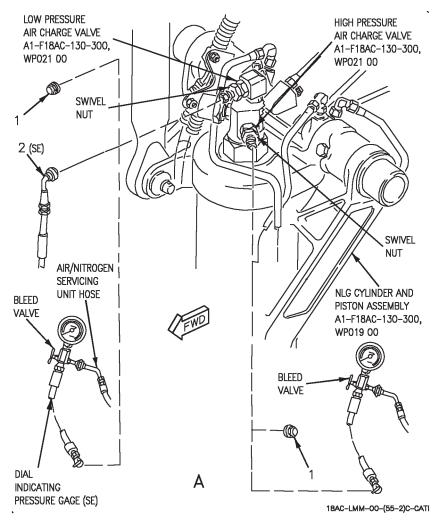
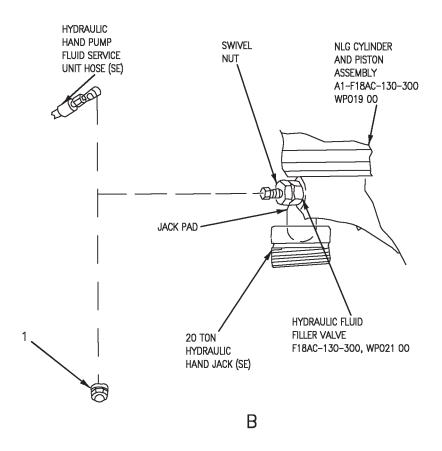


Figure 1. NLG Cylinder and Piston Assembly (Sheet 2)

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18AC-LMM-00-(55-3)C-SCAN

Figure 1. NLG Cylinder and Piston Assembly (Sheet 3)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1 2	MS20813-1 T71622	NLG CYLINDER AND PISTON ASSEMBLY CAP	3		PAOZZ AGOGG

Figure 1. NLG Cylinder and Piston Assembly (Sheet 4)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### ARRESTING HOOK ACTUATOR SERVICING

#### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010	
Plane Captain Manual	A1-F18AC-PCM-000	
Landing Gear and Related Systems	A1-F18AC-130-300	
Arresting Hook Damper Pressure		
Indicator	WP096 00	
Software Configuration Manual	A1-F18AC-SCM-000	

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### **Record of Applicable Technical Directives**

None

#### 1. NORMAL SERVICING.

### **Support Equipment Required**

Part Number or Type Designation	Nomenclature
74D110105-1001	Speed Brake Aircraft Ground Safety Lock

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# **Support Equipment Required (Continued)**

Part Number or	
Type Designation	Nomenclature
-	Torque, Wrench 0 to 120 Inch-Pounds
1317AS100-1	Nitrogen Servicing Unit
74D110010-1001	Arresting Hook Aircraft Ground Safety Pin
630AS100-11	Hydraulic Hand Pump Fluid Service Unit
MIL-G-8348	Air Pressure Gage Assembly
CLASS A SIZE 1	
-	Safety Glasses or
	Face Shield
-	External Electrical
	Power Source
-	External Hydraulic
	Power Source
-	Thermometer
-	Drill Bit 0.125 Inch

### **Materials Required**

Specification or Part Number	Nomenclature
MIL-H-83282 (CAGE 81349)	Hydraulic Fluid

Change 1

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### WARNING

To prevent loss of or damage to aircraft, precise arresting hook servicing is mandatory for correct system operation.

a. Make sure electrical and hydraulic power are off (WP004 00 and WP009 00).

#### NOTE

Failure of the arresting hook actuator to maintain a nitrogen system precharge may indicate leakage at nitrogen tube connections. Inspect all nitrogen connections for leakage before replacing any component.

- b. If hydraulic fluid leakage is not observed, go to step c. If hydraulic leakage is observed or a new actuator/damper is being installed, do substeps below:
- (1) Install speed brake aircraft ground safety lock (A1-F18AC-PCM-000).
  - (2) If arresting hook is not retracted, do substeps below:

Change 1

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To prevent damage to aircraft, door 103 must be installed before arresting hook is extended or retracted.

- (a) Make sure door 103 is installed (A1-F18AC-LMM-010).
- (b) Apply external electrical and hydraulic power (WP004 00 and WP009 00).

### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (c) Set arresting HOOK manual control lever up (figure 1).
- (d) After arresting hook is fully retracted, remove external electrical and hydraulic power (WP004 00 and WP009 00).
- (e) Install arresting hook aircraft ground safety pin (A1-F18AC-PCM-000).
  - (3) Remove door 103 (A1-F18AC-LMM-010).

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# WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge/oil fill valve must be fully closed (tightened clockwise) before removing valve cap.

(4) Make sure swivel nut on air charge/oil fill valve of actuator is tight and remove cap (1).

#### WARNING

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge/oil fill valve, swivel nut must not be loosened more than 2-1/2 turns.

- (5) Loosen air charge/oil fill valve swivel nut to slowly bleed off nitrogen charge in actuator. After nitrogen charge has been bled off, open swivel nut of air charge/oil fill valve fully (2-1/2 turns maximum).
  - (6) Remove cap (2) from actuator bleed port.

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Arresting hook actuator hydraulic overservicing will result if the actuator internal standpipe becomes separated from upper actuator housing assembly.

- (7) Make sure standpipe is in place by inserting shank end of a 0.125 inch drill bit into arresting hook actuator bleed port fitting as far as it will go (detail B, figure 1). Shank end of drill bit must be flat as shown.
- (8) With drill bit installed, mark shank at end of bleed port fitting.
- (9) Remove drill bit and measure distance from end of shank to mark on drill bit.
- (10) If mark on drill bit as determined in substep (9) is more than  $1.43\pm0.07$  inches from end of shank, replace arresting hook actuator (A1-F18AC-130-300, WP092 00). (QA)

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# WARNING

Hydraulic fluid is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally enough.

To prevent contamination of actuator/damper, hand pump hydraulic fluid service unit must be serviced with MIL-H-83282 hydraulic fluid.

- (11) Make sure hydraulic hand pump fluid service unit is serviced with MIL-H-83282 hydraulic fluid.
- (12) Connect hose from hydraulic hand pump fluid service unit to air charge/oil fill valve on actuator.
- (13) Slowly pump hydraulic fluid into actuator until fluid appears at bleed port.
- (14) Disconnect hydraulic hand pump fluid service unit from air charge/oil fill valve.
  - c. Open door 135 (A1-F18AC-LMM-010).
  - d. If arresting hook is not retracted, do substeps below:

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To prevent damage to aircraft, door 103 must be installed before arresting hook is extended or retracted.

- (1) Make sure door 103 is installed (A1-F18AC-LMM-010).
- $\,$  (2) Apply external electrical and hydraulic power (WP004  $\,$  00 and WP009  $\,$  00).

### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (3) Set arresting HOOK manual control lever up (figure 1).
- (4) After arresting hook is fully retracted, remove external electrical and hydraulic power (WP004 00 and WP009 00).
- (5) Install arresting hook aircraft ground safety pin (A1-F18AC-PCM-000).

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# CAUTION

To prevent possible corrosion in actuator air chamber, only nitrogen BB-N-411, Type I, Class 1, Grade B or clean air filtered through a 10 micron filter with a dew point of -65°F or lower must be used to service actuator.

e. If actuator required hydraulic fluid filling, go to step f. If actuator did not require hydraulic fluid filling, but requires nitrogen servicing only, do substeps below:

#### WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve in door 135 must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel by rapid extension of arresting hook, arresting hook actuator must be properly serviced with hydraulic fluid before servicing with nitrogen.

(1) Make sure swivel nut on air charge valve, in door 135, is tight and remove cap (1).

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(2) Make sure arresting hook actuator is properly serviced with hydraulic fluid.

### WARNING

Air pressure gage assembly remote controller relief valve must be set at 450 psi.

- (3) Connect air pressure gage assembly to nitrogen servicing unit hose.
- (4) Connect air pressure gage assembly to air charge valve, in door 135.

### WARNING

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

- (5) Loosen air charge valve swivel nut in door 135 (2-1/2 turns maximum) and go to step g.
- f. If actuator has just been filled with hydraulic fluid, do substeps below:

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### WARNING

Air pressure gage assembly remote controller relief valve must be set at 450 psi.

- (1) Connect air pressure gage assembly to nitrogen servicing unit hose.
- (2) If not previously done, remove door 103 (A1-F18AC-LMM-010).
- (3) Connect air pressure assembly to air charge/oil fill valve on actuator (in door 103).
- (4) Make sure air charge/oil fill valve swivel nut in door 103 is loosened (2-1/2 turns maximum).

#### **NOTE**

The air charge/oil fill valve in door 103 or air charge valve in door 135 which is not being used for nitrogen servicing, must remain tightly closed and capped.

- (5) Make sure air charge valve in door 135, which is not connected to air pressure gage assembly, is tightly closed and capped.
- (6) Apply 5 to 10 psig nitrogen pressure until hydraulic fluid flow at bleed port stops.
- (7) Install cap (2) on bleed port and torque 60 to 80 inch-pounds.

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- g. Do ground intercommunications hookup with external electrical power (WP012  $\,$  00).
- h. On GND PWR control panel assembly, set 1 and 2 switches to B ON and hold for 3 seconds.

#### NOTE

The CONFIG/IDENT number of Digital Data Computer No. 1 must be known to do this procedure.

- i. Identify CONFIG/IDENT number of Digital Data Computer No. 1 (Unit address 28) (A1-F18AC-SCM-000).
- j. Set up cockpit left Digital Display Indicator (LDDI) for displays except do not change GND PWR control panel assembly GND PWR switch positions (WP008 00).
- k. On LDDI press MENU pushbutton and release until BIT MENU appears.
- l. On LDDI press BIT pushbutton. BIT display appears on indicator.
- m. On LDDI press MI pushbutton. BIT display continues to appear on indicator, but ADDR and DATA headings are added. UNIT and ADDR options appear on Electronic Equipment Control.
- n. Press option select pushbutton next to UNIT display on Electronic Equipment Control and observe a colon appears on the left of UNIT display.
- o. Press keyboard switches 2 and 8. Verify 2 and 8 are displayed on scratch pad display and press ENT on Electronic Equipment Control

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keyboard and observe that 2 and 8 appear on LDDI between ADDR nd DATA headings.

p. Press option select pushbutton next to ADDR display on Electronic Equipment Control and observe a colon appears on the left of ADDR display.

Table 1. Unit Address 28 (MC1) MI Addresses

REF CODE	SOFTWARE CONFIGURATION (CONFIG/IDENT)						
	10A Address	12A Address	91C Address	09C Address	13C Address	15C Address	17C Address
IEAGDL	037407	00046277	033636	07027346	07036414	07023011	07023237

- q. Observe address for ref code IEAGDL on table 1 for software installed in aircraft. Enter address by pressing applicable control keyboard switches.
  - r. Verify scratch pad displays correct address.
- s. Press ENT on equipment control keyboard and observe address is displayed under ADDR on LDDI.

#### NOTE

WITH DIGITAL DATA COMPUTER CONFIG/IDENT 10A OR 91C (A1-F18AC-SCM-000) on LDDI, ADDR readout is a six digit display. When ref code address is less than six digits, a 0 (zero) is displayed before the address. Example - address 4444 is displayed as 004444.

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#### NOTE

WITH DIGITAL DATA COMPUTER CONFIG/IDENT 12A OR 09C AND UP (A1-F18AC-SCM-000) on LDDI, ADDR readout is an eight digit display. When ref code address is less than eight digits, a 0 (zero) is displayed before the address. Example - address 7004444 is displayed as 07004444.

t. Verify LDDI displays correct address.

#### NOTE

DDI DATA readout is 6 octal digits, when an X is indicated in an octal digit location in this procedure, that digit is ignored.

u. Interpret DATA readout.

#### **NOTE**

When doing this test, mechanic should observe numbers in the second column from the left. Example: X\_XXXX, the number in the blank is the applicable value; ignore the other five values.

v. Observe LDDI and record value under DATA. (QA) Number will be one of the numbers below:

X2XXXX X3XXXX

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X6XXXX X7XXXX

w. Slowly service arresting hook damper with nitrogen until LDDI DATA numbers change. (QA) Number will be one of the numbers below:

X0XXXX

X1XXXX

X4XXXX

X5XXXX

- x. Read and record pressure on air pressure gage assembly. (QA)
- y. Add an additional 30 PSIG to arresting hook actuator pressure recorded in step x. (QA)
- z. Close air charge/oil fill swivel nut in door 103 or air charge valve swivel nut in door 135 and torque 50 to 70 inch-pounds. (QA)
- aa. Close regulator on nitrogen servicing unit, and bleed off hose pressure.
- ab. Disconnect nitrogen servicing unit hose and air pressure gage assembly from air charge/oil fill valve or air charge valve.
  - ac. Install cap (1) handtight.
  - ad. Turn off cockpit LDDI(WP008 00).
  - ae. Remove ground intercommunications hookup (WP012 00).
  - af. Install door 103 and/or close door 135 (A1-F18AC-LMM-010).
- ag. Remove speed brake aircraft ground safety lock (A1-F18AC-PCM-000).

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- ah. Apply external hydraulic and electrical power (WP009 00 and WP004 00).
- ai. Measure and record time required to extend and retract arresting hook per substeps below:

#### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (1) Set arresting HOOK manual control to down.
- (2) Measure and record time required for arresting hook to release and fully extend (2.5 seconds maximum).

#### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (3) Set arresting HOOK manual control to up.
- (4) Measure and record time required for arresting hook to fully retract (6.0 seconds maximum).
- (5) If arresting hook fails to fully extend or retract in times measured and recorded in substeps (2) and (4), do arresting gear system operational test (Table 1, A1-F18AC-130-200, WP010 00).

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aj. Remove external hydraulic and electrical power (WP009 00 and WP004 00).

# 2. ALTERNATE SERVICING (4 HOURS OR MORE AFTER FLIGHT OR ACTUATOR/DAMPER CYCLING).

#### **Support Equipment Required**

Part Number or Type Designation	Nomenclature
74D110105-1001	Speed Brake Aircraft
	Ground Safety Lock
-	Torque, Wrench 0 to 120
	Inch-Pounds
1317AS100-1	Nitrogen Servicing Unit
74D110010-1001	Arresting Hook Aircraft
	Ground Safety Pin
630AS100-11	Hydraulic Hand Pump
	Fluid Service Unit
MIL-G-8348	Air Pressure Gage Assembly
CLASS A SIZE 1	Ç
-	Safety Glasses or
	Face Shield
-	External Electrical
	Power Source

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### **Support Equipment Required (Continued)**

Part Number or Type Designation	Nomenclature		
-	External Hydraulic Power Source		
_	Thermometer		
-	Drill Bit 0.125 Inch		

#### **Materials Required**

Specification or Part Number	Nomenclature
MIL-H-83282 (CAGE 81349)	Hydraulic Fluid

a. Make sure electrical and hydraulic power are not applied to aircraft.

#### NOTE

Failure of the Arresting Hook Actuator to maintain a nitrogen system precharge may indicate leakage at nitrogen tube connections. Inspect all nitrogen connections for leakage before replacing any components.

b. If hydraulic fluid leakage is not observed, go to step c. If hydraulic fluid leakage is observed or a new actuator/damper is being installed, do substeps below:

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- (1) Install speed brake aircraft ground safety lock (A1-F18AC-PCM-000).
  - (2) If arresting hook is not retracted, do substeps below:



To prevent damage to aircraft, door 103 must be installed before arresting hook is extended or retracted.

- (a) Make sure door 103 is installed (A1-F18AC-LMM-010).
- (b) Apply external electrical and hydraulic power (WP004  $\,$ 00 and WP009  $\,$ 00).

## WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (c) Set arresting HOOK manual control lever up (figure 1).
- (d) After arresting hook is fully retracted, remove external electrical and hydraulic power (WP004  $\,$ 00 and WP009  $\,$ 00).
- (e) Install arresting hook aircraft ground safety pin (A1-F18AC-PCM-000).
  - (f) Remove door 103 (A1-F18AC-LMM-010).

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### WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge/oil fill valve in door 103 must be fully closed (tightened clockwise) before removing valve cap.

(3) Make sure swivel nut on air charge/oil fill valve in door 103 of actuator is tight and remove cap (1).

### WARNING

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge/oil fill valve, swivel nut in door 103 must not be loosened more than 2-1/2 turns.

- (4) Loosen air charge/oil fill valve swivel nut to slowly bleed off nitrogen charge in actuator. After nitrogen charge has been bled off, open swivel nut fully (2-1/2 turn maximum).
  - (5) Remove cap (2) from actuator bleed port.

Change 1

032 00 Page 22



Arresting hook actuator hydraulic overservicing will result if the actuator internal standpipe becomes separated from upper actuator housing assembly.

- (6) Make sure standpipe is in place by inserting shank end of a 0.125 inch drill bit into arresting hook actuator bleed port fitting as far as it will go (detail B, figure 1). Shank end of drill bit must be flat as shown.
- (7) With drill bit installed, mark shank at end of bleed port fitting.
- (8) Remove drill bit and measure distance from end of shank to mark on drill bit.
- (9) If mark on drill bit as determined on substep (8) is more than  $1.43\pm0.07$  inches from end of shank, replace arresting hook actuator (A1-F18AC-130-300, WP092 00). (QA)

Change 1 Page 23

032 00

# WARNING

Hydraulic fluid is toxic to skin, eyes, and respiratory tract. Skin and eye protection required. Avoid repeated or prolonged contact. Good general ventilation is normally enough.



To prevent contamination of actuator/damper, hand pump hydraulic fluid service unit must be serviced with MIL-H-83282 hydraulic fluid.

- (10) Make sure hydraulic hand pump fluid service unit is serviced with MIL-H-83282 hydraulic fluid.
- (11) Connect hose from hydraulic hand pump fluid service unit to air charge/oil fill valve on actuator in door 103.
- (12) Slowly pump hydraulic fluid into actuator until fluid appears at bleed port.
- (13) Disconnect hydraulic hand pump fluid service unit from air charge/oil fill valve in door 103.
  - c. Open door 135 (A1-F18AC-LMM-010).
  - d. If arresting hook is not retracted, do substeps below:

032 00 Change 1 Page 24



To prevent damage to aircraft, door 103 must be installed before arresting hook is extended or retracted.

- (1) Make sure door 103 is installed (A1-F18AC-LMM-010).
- (2) Apply external electrical and hydraulic power (WP004 00 and WP009 00).

### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (3) Set arresting HOOK manual control lever up (figure 1).
- (4) After arresting hook is fully retracted, remove external electrical and hydraulic power (WP004 00 and WP009 00).
- (5) Install arresting hook aircraft ground safety pin (A1-F18AC-PCM-000).
- e. Using thermometer, observe and record stabilized ambient air temperature in door 135.

Change 1 Page 25

032 00



To prevent possible corrosion in actuator air chamber, only nitrogen BB-N-411, Type I, Class 1, Grade B or clean air filtered through a 10 micron filter with a dew point of  $-65\,^{\circ}$  F or lower must be used to service actuator.

f. If actuator required hydraulic fluid filling, go to step g. If actuator did not require hydraulic fluid filling, but requires nitrogen servicing only, do substeps below:

Change 1

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### WARNING

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve in door 135 must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge valve in door 135, swivel nut must not be loosened more than 2-1/2 turns.

To prevent injury to personnel by rapid extension of arresting hook, arresting hook actuator must be properly serviced with hydraulic fluid before servicing with nitrogen.

- (1) Make sure swivel nut on air charge valve, in door 135, is tight and remove cap (1).
- (2) Make sure arresting hook actuator is properly serviced with hydraulic fluid.

Change 1

032 00 Page 27

### WARNING

Air pressure gage assembly remote controller relief valve must be set at 450 psi.

- (3) Connect air pressure gage assembly to nitrogen servicing unit hose.
- (4) Connect air pressure gage assembly to air charge valve in door 135.
- (5) Loosen air charge valve swivel nut in door 135 (2-1/2 turns maximum) and go to step h.
- g. If actuator has just been filled with hydraulic fluid, do substeps below:
- (1) If not previously done, remove door 103 (A1-F18AC-LMM-010).

#### **WARNING**

Air pressure gage assembly remote controller relief valve must be set at 450 psi.

- (2) Connect air pressure gage assembly to nitrogen servicing unit hose.
- (3) Connect air pressure gage assembly to air charge/oil fill valve on actuator (in door 103).

Change 1

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(4) Make sure air charge/oil fill valve swivel nut in door 103 is loosened (2-1/2 turns maximum).

#### NOTE

The air charge valve (in door 135) which is not being used for nitrogen servicing, must remain tightly closed and capped.

- (5) Make sure air charge valve in door 135, which is not connected to air pressure gage assembly, is tightly closed and capped.
- (6) Apply 5 to 10 psig nitrogen pressure until hydraulic fluid flow at bleed port stops.
- $\left(7\right)$  Install cap  $\left(2\right)$  on bleed port and torque 60 to 80 inch-pounds.
- h. Using ambient air temperature recorded in step e and Table 2 Arresting Hook Actuator Servicing Pressure, determine correct nitrogen charge pressure.

Table 2. Arresting Hook Actuator Servicing Pressure

Ambient	Nitrogen
Temperature	Charge
° F	+10, –0 PSIG
+163	440
+149	430
+135	420
+135 +121	420 410

Change 1

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Table 2. Arresting Hook Actuator Servicing Pressure (Continued)

Ambient	Nitrogen
Temperature	Charge
°F	+10, –0 PSIG
+107 +92 +78 +64 +50 +36 +22 +7 -7 -21	400 390 380 370 360 350 340 330 320 310 300

- i. Service actuator to correct charge pressure as determined in Table 2.
- j. Make sure difference between arresting hook damper pressure indicator and air pressure gage assembly pressure gage is not greater than 40 psi. If pressure difference is greater than 40 psi, replace arresting hook damper pressure indicator (A1-F18AC-130-300, WP096 00).
- k. Close air charge/oil fill valve in door 103 or air charge valve in door 135 swivel nut and torque 50 to 70 inch-pounds. (QA)
- l. Close regulator on nitrogen servicing unit and bleed off hose pressure.

Change 1

032 00 Page 30

m. Disconnect nitrogen servicing unit hose and air pressure assembly from air charge/oil fill valve or air charge valve.

- n. Install cap (1) handtight.
- o. Install door 103 and/or close door 135 (A1-F18AC-LMM-010).
- p. Remove speed brake aircraft ground safety lock (A1-F18AC-PCM-000).
- q. Apply external hydraulic and electrical power (WP009  $\,00$  and WP004  $\,00$ ).
- r. Measure and record time required to extend and retract arresting hook per substeps below:

### WARNING

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (1) Set arresting HOOK manual control to down.
- (2) Measure and record time required for arresting hook to release and fully extend (2.5 seconds maximum).

Change 1 Page 31

### WARNING

032 00

To prevent death or injury to personnel or damage to equipment, area surrounding arresting hook must be clear of personnel and obstructions.

- (3) Set arresting HOOK manual control to up.
- (4) Measure and record time required for arresting hook to fully retract (6.0 seconds maximum).
- (5) If arresting hook fails to fully extend or retract in times measured and recorded in substeps (2) and (4), do arresting gear system operational test (Table 1, A1-F18AC-130-200, WP010 00).
- s. Remove external hydraulic and electrical power (WP009  $\,00$  and WP004  $\,00).$

#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

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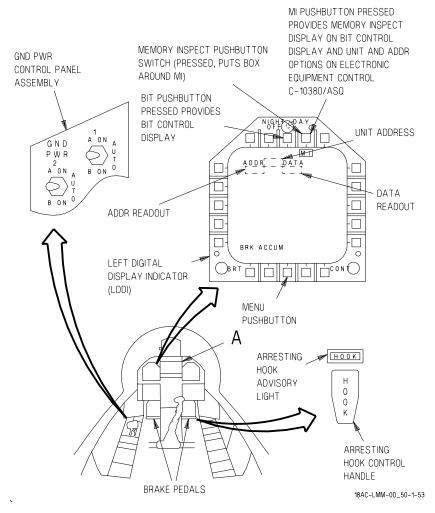
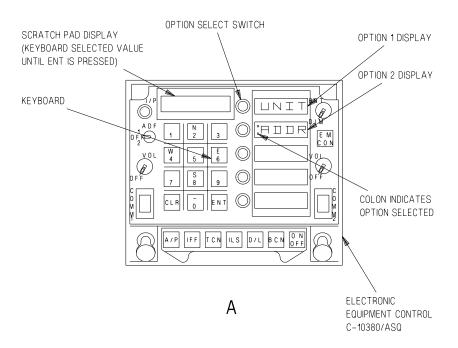


Figure 1. Arresting Hook Actuator (Sheet 1)

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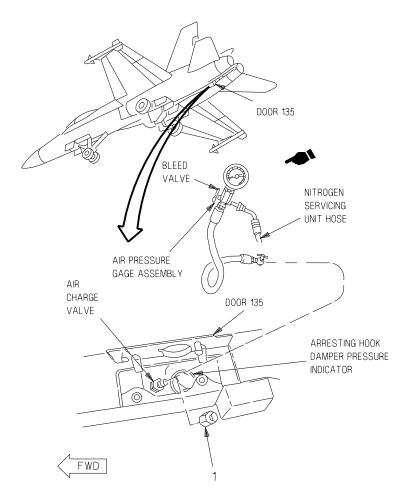


18AC-LMM-00\_50-1.1-53

Figure 1. Arresting Hook Actuator (Sheet 2)

032 00

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ADA542-50-2-067

Figure 1. Arresting Hook Actuator (Sheet 3)

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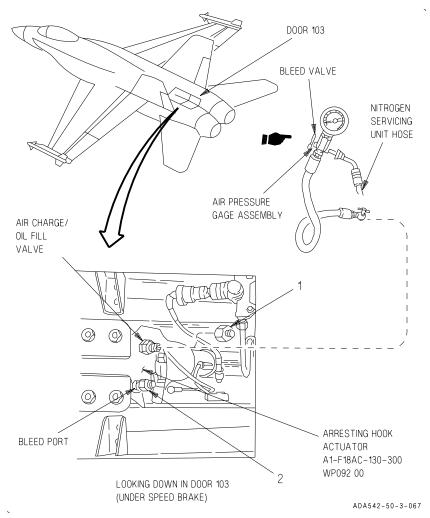
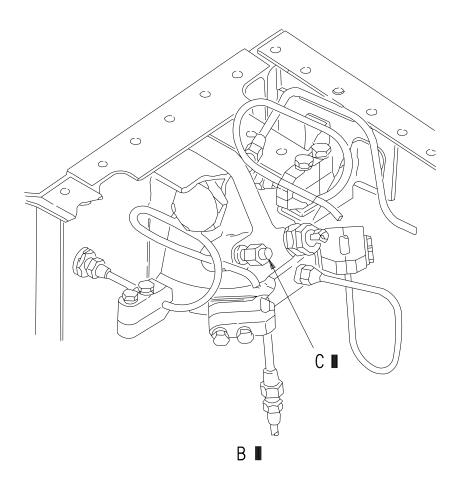


Figure 1. Arresting Hook Actuator (Sheet 4)

Change 5

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ADA542-50-4-064

Figure 1. Arresting Hook Actuator (Sheet 5)

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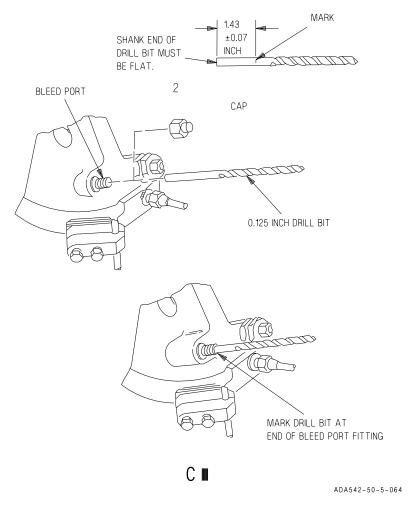


Figure 1. Arresting Hook Actuator (Sheet 6)

032 00

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1 2	MS20813-1 AN929-4J	ARRESTING HOOK ACTUATOR	2		PAOZZ PAOZZ

15 April 1996

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### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

#### **SERVICING - EMER BRAKE ACCUMULATOR**

#### **Reference Material**

Landing Gear and Related Systems	A1-F18AC-130-300
Emer Brake Accumulator Fluid Manifold,	
Temperature Compensated Pressure	
Switch, Emer Brake Accumulator	
Manifold Pressure Gage, and Air	
Charge Valve	WP071 00
Hydraulic Brake Pressure Indicator	WP072 00
Plane Captain Manual	A1-F18AC-PCM-000

033 00

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# **Alphabetical Index**

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Emer Brake Accumulator, Figure 1	10
Emer Brake Accumulator Inflation Pressure, Table 1	7
Illustrated Parts Breakdown	9
Illustration	10
Parts List	12
Materials Required	3
Parts List	12
Servicing	4
Support Equipment Required	3

### **Record of Applicable Technical Directives**

None

033 00

Page 3

# **Support Equipment Required**

Part Number or Type Designation	Nomenclature
1317AS100-1	Nitrogen Servicing Unit
-	Torque Wrench,
	0 to 120 Inch-Pounds
-	Safety Glasses or Face
	Shield
MIL-G-8348,	Air Pressure Gage
Class A, Size 1	Assembly

# **Materials Required**

None

#### 1. SERVICING.

### **WARNING**

To prevent injury to personnel from sudden release of pneumatic pressure, swivel nut on air charge valve must be fully closed (tightened clockwise) before removing valve cap.

To prevent injury to personnel, safety glasses or face shield must be worn when servicing with nitrogen or with medium or high pressure air.

To prevent injury to personnel and damage to air charge valve, swivel nut must not be loosened more than 2-1/2 turns.

#### NOTE

Failure of the EMER BRAKE accumulator to maintain a nitrogen system precharge may indicate leakage at nitrogen tube connections. Inspect all nitrogen connections for leakage before replacing any component.

a. If aircraft is not on jacks, do substeps below:

# WARNING

To prevent death or injury to personnel and damage to aircraft, all warnings and cautions for external electrical power application and removal (application-weight off wheels, removal-weight off wheels) shall be observed while using proximity switch control box. Failure to comply may cause aircraft systems to be energized to an inflight condition.

- (1) Make sure wheel chocks or aircraft tiedowns are installed.
- (2) Hook up proximity switch control, but do not pull EMERG BRK/PARK BRK handle to PARK BRK or read Brake Pressure Indicator until step c (WP007 00).
- (3) Observe cautions on proximity switch control then set LEFT GEAR switch to WT OFF WHLS.
  - b. Apply external electrical power (WP004 00).
- c. Pull EMERG BRK/PARK BRK control handle (figure 1) to emergency brake position and pump brake pedals until Hydraulic Brake Pressure Indicator stabilizes, indicating hydraulic pressure is depleted.

# CAUTION

To prevent possible corrosion in accumulator, only nitrogen BB-N-411, Type I, Class 1, Grade B or, if nitrogen is not available, clean air filtered through a 10 micron filter with a dew point of -65°F or lower must be used to service accumulator.

- d. If emer brake accumulator manifold pressure is not per placard do substeps below:
- (1) Make sure swivel nut on air charge valve is tight and remove cap (1).
  - (2) Connect gage assembly to nitrogen unit hose.



To prevent accumulator contamination, purge nitrogen servicing unit lines and gage assembly before use.

- (3) Purge nitrogen servicing unit lines and gage assembly.
- (4) Connect gage assembly to air charge valve.

- (5) Loosen air charge swivel nut 2-1/2 turns maximum.
- (6) While servicing accumulator to 2000 psi, pump brake pedals until Hydraulic Brake Pressure Indicator stabilizes, indicating hydraulic pressure is depleted.
- e. Observe and record stabilized ambient air temperature in nose wheelwell.
- f. Using ambient air temperature recorded in step e and Table 1 emer brake accumulator inflation pressure, determine correct nitrogen charge pressure.

Table 1. Emer Brake Accumulator Inflation Pressure

Ambient Temperature F°	Nitrogen Charge psig	Ambient Temperature F°	Nitrogen Charge psig
+160	1750	+50	1440
+150	1730	+40	1420
+140	1700	+30	1390
+130	1670	+20	1360
+120	1640	+10	1330
+110	1610	0	1300
+100	1580	-10	1270
+90	1560	-20	1250
+80	1530	-30	1220
+70	1500	-40	1190
+60	1470		

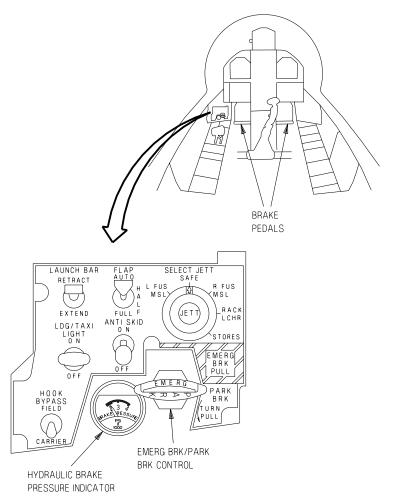
g. Service accumulator to proper charge pressure as determined in Table 1 emer brake accumulator inflation pressure.

- h. Make sure difference between Hydraulic Brake Pressure Indicator, emer brake accumulator manifold pressure gage and assembly is not greater than 250 psig. If pressure difference is greater than 250 psig, replace Hydraulic Brake Pressure Indicator or emer brake accumulator manifold pressure gage (A1-F18AC-130-300, WP072 00 or WP071 00).
- i. Close air charge valve swivel nut and torque 50 to 70 inch-pounds. (QA)
  - j. Close regulator on nitrogen servicing unit.
  - k. Bleed off nitrogen on servicing unit hose.
- l. Disconnect nitrogen servicing unit hose and gage assembly from air charge valve.
  - m. Install cap (1) handtight.
  - n. Push EMERG BRK/PARK BRK control handle in.
  - o. Remove external electrical power (WP004 00).
  - p. Remove proximity switch control if installed (WP007 00).
  - q. Do APU accumulator hydraulic charging (A1-F18AC-PCM-000).

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#### 2. ILLUSTRATED PARTS BREAKDOWN.

3. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.



18AC-LMM-00\_48-1-53

Figure 1. Emer Brake Accumulator (Sheet 1)

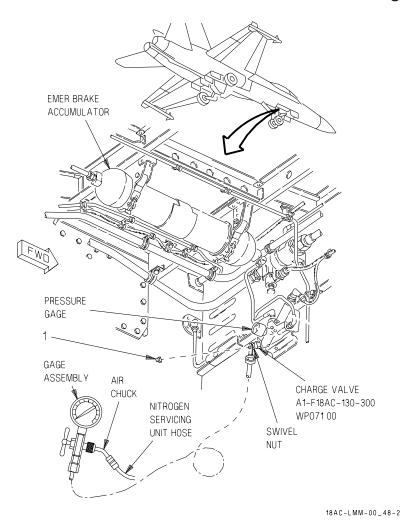


Figure 1. Emer Brake Accumulator (Sheet 2)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1 MS20813-1		EMER BRAKE ACCUMULATOR	1		PAOZZ

Figure 1. Emer Brake Accumulator (Sheet 3)

Change 16 - 15 September 2002

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **EXCHANGE - TEN LITER LIQUID OXYGEN CONVERTER**

**EFFECTIVITY: 161353 THRU 164068** 

#### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
-------------------------------	------------------

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Ten Liter Liquid Oxygen Converter	
Exchange, Figure 1	8

### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp	Remarks
F/A-18 AFC 221	21 Apr 95	Liquid Oxygen (LOX) Converter Guide Bracket/ Ramec Noris 18-93	15 Apr 96	-

### **Support Equipment Required**

None

### **Materials Required**

Specification or Part Number

Nomenclature

MIL-B-117 TY1CLEST2SZ3 (CAGE 80244) Bag, Plastic

### WARNING

Liquid oxygen is a cryogenic liquid which causes freezing of tissues. Liquid oxygen and combustible/organic materials make explosive combination. Wear special protective clothing that will not ignite upon contact with liquid oxygen. Avoid all contact.

Oxygen improves combustion and will cause fire or explosion if not handled correctly.

The area near aircraft must be open, free of hollows that could trap vented oxygen, well ventilated, free of oil, grease, and other combustible materials. A class BC fire extinguisher shall be kept near worksite. Flame or spark producing activity shall not be done within 50 feet of worksite.

#### 1. REMOVAL.

- a. Make sure electrical and hydraulic power are not applied and no fueling or defueling is in progress.
  - b. Open door 13L (A1-F18AC-LMM-010).
- c. Disconnect connectors (1 and 2, figure 1) from Ten Liter Liquid Oxygen Converter (converter) (5) receptacles by pulling on knurled sleeve and rotating sleeve counterclockwise.

- d. Stow connectors (1 and 2) in stowage clips (3).
- e. Disconnect supply hose assembly from converter (5) by pushing down on lock ring, then rotating quick disconnect coupling (6) counterclockwise. If converter (5) is not to be replaced immediately, cover converter (5) supply line connection and supply hose assembly with a plastic bag.
  - f. Stow supply hose assembly in stowage clip (4).
- g. Disconnect vent hose assembly from converter (5) by rotating quick disconnect coupling (10) counterclockwise. If converter (5) is not to be replaced immediately, cover converter (5) vent line connection and vent hose assembly with a plastic bag.
  - h. Stow vent hose assembly in stowage clip.
  - i. Loosen nut assy (7) until latch (9) can be rotated down.



Make sure Ten Liter Liquid Oxygen Converter does not chafe oxygen system tube assemblies during removal.

j. Remove the converter (5) by pulling outboard while holding carrying handle. Make sure converter does not chafe oxygen system tube assemblies.

#### 2. INSTALLATION.

### **WARNING**

Liquid oxygen is a cryogenic liquid which causes freezeing of tissues. Liquid oxygen and combustible/organic materials make explosive combination. Wear special protective clothing that will not ignite upon contact with liquid oxygen. Avoid all contact.

Oxygen improves combustion and will cause fire or explosion if not handled correctly.

.

The area near aircraft must be open, free of hollows that could trap vented oxygen, well ventilated, free of oil, grease, and other combustible materials. A class BC fire extinguisher shall be kept near worksite. Flame or spark producing activity shall not be done within 50 feet of worksite.

a. Make sure electrical and hydraulic power are not applied and no fueling or defueling is in progress.

# CAUTION

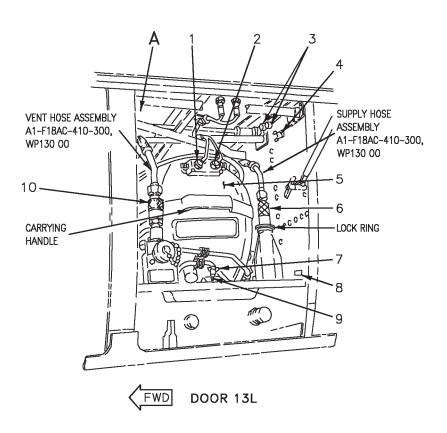
Make sure Ten Liter Liquid Oxygen Converter does not chafe oxygen system tube assemblies during installation.

- b. After AFC 221, to avoid damage to structure, use guide bracket (detail A, figure 1) on forward edge sill of door 13L compartment to guide converter installation.
- c. Position serviced converter (5, figure 1) in mounting bracket in door 13L. Make sure converter does not chafe oxygen system tube assemblies.
  - d. Rotate latch (9) up and tighten nut assy (7).
- e. Remove vent hose assembly from stowage clip and remove plastic bag, if installed.
- f. Connect vent hose assembly to converter (5). Turn quick disconnect coupling (10) until lockpin engages locking slot.
- g. Remove supply hose assembly from stowage clip (4) and remove plastic bag, if installed.
- h. Connect supply hose assembly to converter (5). Turn quick disconnect coupling (6) until lockpin engages locking slot.
  - i. Remove connectors (1 and 2) from stowage clips (3).
  - j. Connect connectors (1 and 2) to converter (5) receptacles.
  - k. Apply electrical power (WP004 00).

- l. On GND PWR control panel assembly, set and hold 3 switch to A ON for 3 seconds.
- m. On pilot services control panel assembly, press OXY TEST switch and verify Liquid Oxygen Quantity Indicator GMU-75/A pointer rotates.
  - n. Release OXY TEST switch.
  - o. Remove electrical power (WP004 00).
  - p. Close door 13L (A1-F18AC-LMM-010).

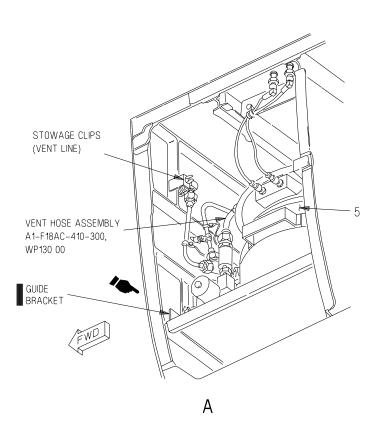
#### 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.



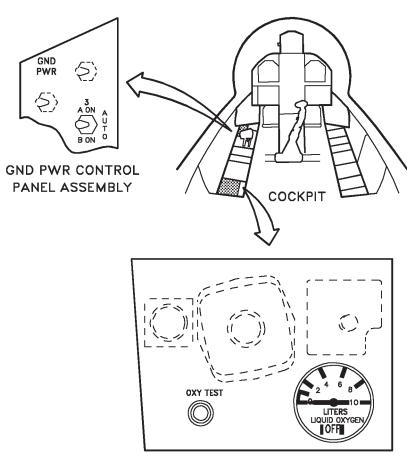
18AC-LMM-00-(32-1)46-SCAN

Figure 1. Ten Liter Liquid Oxygen Converter Exchange (Sheet 1)



18AC-LMM-00\_32-2-59

Figure 1. Ten Liter Liquid Oxygen Converter Exchange (Sheet 2)



PILOT SERVICES CONTROL PANEL ASSEMBLY

18AC-LMM-00-(32-3)A-CATI

Figure 1. Ten Liter Liquid Oxygen Converter Exchange (Sheet 3)

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		TEN LITER LIQUID OXYGEN			
		CONVERTER EXCHANGE			
1	M25516/20-02-04	. CONNECTOR, PLUG	1		PAOZZ
2	M25516/20-03-04	. CONNECTOR, PLUG	1		PAOZZ
2	1120010/20-00-01	(15P-E003B)	1		THOLL
3	M24066/2-308	. CLIP	2		PADZZ
	MS20470AD3 #	. RIVET (AP)	1		PAGZZ
4	NAS1464-032-04C	. CLIP	1		PAOZZ
	MS20470AD4 #	. RIVET (AP)	1		PAOZZ
5	10C-0016-16	. CONVERTER, LIQUID OXYGEN  GCU-24(A) (TEN LITER LIQUID OXYGEN CONVERTER ) (19062) (15A-E003) (LOX)	1		PAOGD
	GCU24A/A	. SEE ABOVE (80058)	1		PAOGD
	10C0016-10	. SEE ABOVE (83533)	1	*	PAOGD
	GCU24A	. SEE ABOVE (80058)	1	*	PAOGD
6	MS22068-7	. COUPLING HALF, QUICK	1		PAOZZ
7	MS90342	. NUT ASSY	1		PAOZZ
8	74A890008-2039	. PLATE, IDENTIFICATION - BAY 3L (76301) (SUPERSEDES 74A890008-2011)	1		MDOZZ
9	52197 - 225	. LATCH, T-BOLT (98625)	1		PAOZZ
10	MS22068-8	. COUPLING HALF, QUICK DISCONNECT (LOX)	1		PAOZZ

Figure 1. Ten Liter Liquid Oxygen Converter Exchange (Sheet 4)

<sup>\*</sup> ALTERNATE OR EQUIVALENT PARTS. (WP002 00/INTRO)

034 00

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE	
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<sup>#</sup> LENGHT/SIZE TO BE DETERMINED AT INSTALLATION.

Figure 1. Ten Liter Liquid Oxygen Converter Exchange (Sheet 5)

035 00

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

### **SERVICING - RADAR LIQUID COOLING SYSTEM**

#### **Reference Material**

Liquid Coolant Filtration Unit	LCFU-2AC-302-8
Joint Oil Analysis Program Manual, Volume I	NAVAIR 17-15-50.1
Joint Oil Analysis Program Manual, Volume II .	NAVAIR 17-15-50.2
Line Maintenance Access Doors	A1-F18AC-LMM-010

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Consolding

### **Record of Applicable Technical Directives**

None

#### 1. **DECONTAMINATION.**

### **Support Equipment Required**

Nomenclature
Liquid Coolant Filtration Unit
Liquid Coolant Fluid Make-up Unit

### **Materials Required**

or Part Number	Nomenclature
MIL-PRF-87252C (CAGE 81349)	Fluid, Coolant

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035 00 Page 4

#### 2. PREPARATION - LCFU.



The LCFU is equipped with a SYSTEM PRESSURE INDICATOR which has three color bands. The green and yellow bands are displayed at normal operations. The red band is displayed when the LCFU pressure has exceeded 65 psi.

If the red band is displayed, shutoff LCFU immediately and troubleshoot.

COLOR	PRESSURE - PSI
Green	0 to 30
Yellow	30 to 65
Red	65 to 100

Change 12 Page 5

035 00

### WARNING

Heat transfer fluid may cause eye, skin and respiratory irritation. Avoid prolonged breathing of vapors. Keep container closed. Use adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

# CAUTION

The LCFU is equipped with a PRESSURE SENSITIVE SENSOR and RED LIGHT INDICATOR, located next to the power switch. If circulating pressure in excess of 50 PSI builds up, due to fluid contaminates, the red light comes on. Shut down LCFU. The first and second stage filters and fluid must be replaced before further use.

#### NOTE

All LCFU phases under paragraph 1 are required to conduct aircraft decontamination. Decontamination of radar liquid cooling system is required when coolant is contaminated. Decontamination will also be referenced as part of installation procedures during system maintenance.

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#### NOTE

To make sure trapped air is allowed to settle out of RLCS, allow at least 3 to 4 hours after operation of the radar or RLCS pump, or before doing Decontamination procedure.

#### 3. Fluid Level Check.

a. Inspect LCFU (5, figure 1) make—up reservoir sight gage for fluid level. If the fluid level is not at the top of the gage (black line) add fluid. See Organizational Level Servicing, Fluid - Refilling the LCFU, paragraph 12.

#### 4. Nitrogen Bottle Check.

a. Inspect LCFU (5, figure 1) nitrogen pressure gage for content pressure. If the gage indicates 500 PSI or less, have nitrogen bottle refilled. See Organizational Level Servicing, Nitrogen - Refilling LCFU Bottle, paragraph 13.

#### 5. MAKE-UP CYCLE - LCFU

- a. Make sure LCFU (5, figure 1) power switch is in the OFF position.
- b. Attach LCFU (5) ground strap to same ground spot as grounding cable of aircraft to be serviced.
  - c. Connect LCFU (5) power cable to 110VAC, 60Hz, 10 amp source.

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To prevent contamination of RLCS, quick disconnects must be clean and free of dirt and moisture before connecting LCFU hoses. Inspect LCFU hose connections to make sure they are clean and free of dirt and moisture. Use lint free rags to clean quick disconnects.

- d. Set LCFU (5) flow control handle to MAKE-UP CYCLE.
- e. Open LCFU (5) nitrogen bottle valve one full turn.
- f. Set LCFU (5) nitrogen bottle regulator gage between 22 to 28 PSI using the assembly T handle. (The nitrogen pressure assists in transferring fluid from make—up reservoir to filter stages.)
- g. While observing LCFU (5) make—up flow indicator, lift and hold LCFU (5) make—up control valve handle until fluid stops, then close the handle.
- h. Open first and second stage bleed valves to let trapped air out. Close bleed valves when sight gages are filled with fluid.
  - i. Close LCFU (5) nitrogen bottle valve handtight.
- j. After LCFU Make-up Cycle is complete, go to paragraph 6, Self Cycle LCFU, to continue preparations for decontamination.

#### 6. SELF CYCLE - LCFU.

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- a. Make sure LCFU (5, figure 1) power switch is in the OFF position.
  - b. Set LCFU (5) flow control handle to SELF CYCLE.
  - c. Make sure LCFU (5) power cable and ground strap are connected.



If the RED Band shows on the System Pressure Indicator during Self Cycle, immediately shut down LCFU and return it to the Intermediate Level. A visible green or yellow band is within normal pressure limits.

- d. Press LCFU (5) power switch ON.
- e. Observe LCFU (5) filter assembly sight gages. If bubbles or no fluid exists, open first stage bleed valve then second stage bleed valve to allow trapped air to escape. Repeat the process as required during SELF CYCLE mode.
- f. Run LCFU in SELF CYCLE mode for approximately fifteen minutes. This process circulates fluid through the LCFU filtering and purifying system before connecting to aircraft for decontamination or topping off of fluid.
- g. After LCFU SELF CYCLE is complete, go to paragraph 7, Make-up Cycle - Aircraft Bleeding and Servicing, to continue preparations for decontamination.

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# 7. MAKE-UP CYCLE - Aircraft Bleeding & Servicing NOTE

This phase of Servicing and Bleeding an aircraft with the LCFU is done together with Decontamination. During RLCS fluid replenishment, if the LCFU is not available or is not accessible because of limited operational spaces, go to paragraph 9, Servicing and Bleeding, using the 2001MC, Liquid Coolant Fluid Make-up Unit (4, figure 1).

The reservoir in the radar liquid cooling centrifugal pump unit requires refilling when fluids low code 985 is displayed or when RESERVOIR LEVEL indicator on RDR LCS SVCE panel assembly is LOW WHITE.

- a. Make sure LCFU (5) power is OFF and ground strap is in place.
- b. Position an open container under aircraft BLEED PORT (bottom of left LEX).
- c. Open door 6 (A1-F18AC-LMM-010). Disconnect plug caps (1 and 2) from FILL and RETURN quick disconnects.
- d. Clean and attach LCFU (5) blue hose to aircraft LCS FILL blue servicing quick disconnect.
- e. Clean and attach LCFU silver hose to aircraft LCS RETURN silver servicing quick disconnect.
  - f. Set LCFU (5) flow control handle to MAKE-UP CYCLE.

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- g. Inspect LCFU (5) nitrogen pressure gage, if it indicates that between 22 to 28 PSI exists then go to step J. If it reads 0 PSI, go to next step.
  - h. Open LCFU (5) nitrogen valve one full turn.
- i. Set LCFU (5) nitrogen bottle regulator gage between 22 to 28 PSI using the assembly T handle. The nitrogen pressure assists in transferring fluid from the Make-up Reservoir to aircraft.
- j. Open LCFU (5) first and second stage bleed valves to let trapped air out. Close bleed valves when sight gages are filled with fluid.
  - k. Apply aircraft electrical power (WP004 00).
- l. On GND PWR control panel assembly, set switch 1 to A ON for 3 seconds, then to AUTO. (DO NOT TURN ON RLCS PUMP).

#### **NOTE**

Servicing and bleeding may trip maintenance code 985. Reset code 985 after completion of procedure.

- m. While observing LCFU (5) Make-up Flow Indicator, lift and hold LCFU (5) Make-up Control Valve Handle until fluid flow stops, then close the valve.
- n. Open and hold BLEED VALVE until stream of fluid, free of air, is observed or RESERVOIR LEVEL indicator on RDR LCS SVCE panel assembly is LOW WHITE. Release BLEED VALVE.
  - o. Repeat steps m and n until all air is removed.

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- p. When all air is removed, repeat step m to add to radar fluid.
- q. Close LCFU (5) nitrogen bottle valve handtight.
- r. On GND PWR control panel assembly, set EXT PWR switch to OFF.
- s. Continue aircraft decontamination. Go to paragraph 8, Operation Cycle Aircraft Decontamination.

#### 8. OPERATION CYCLE - Aircraft Decontamination

#### NOTE

The decontamination process of aircraft radar LCS fluid takes approximately thirty minutes.

- a. Make sure LCFU (5, figure 1) power switch is in the OFF position.
  - b. Set flow control handle to OPERATION CYCLE.
- c. Make sure LCFU (5) blue and silver hoses, power cable and ground strap are connected to their respective receptacles.

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# CAUTION

If the RED Band shows on the System Pressure Indicator during the Operation Cycle, immediately shut down LCFU and return it to Intermediate Level. Green or yellow bands showing are within normal pressure limits.

- d. Press LCFU (5) power switch ON.
- e. Observe LCFU (5) filter assembly Sight Gauges. If bubbles or no fluid exists, open first stage Bleed Valve then second stage Bleed Valve to allow air to escape. Repeat process as required during the Operation Cycle.
  - f. Allow Decontamination Cycle to run for thirty minutes.

#### **NOTE**

At the completion of the Operation Cycle Decontamination process inspect fluid level at the Radar LCS Reservoir Indicator.

- g. Turn LCFU (5) power OFF.
- h. Remove both LCFU  $\left(5\right)$  hoses from aircraft FILL and RETURN quick disconnects.
  - i. Apply aircraft electrical power (WP004 00).
- j. On GND PWR control panel assembly, set switch 1 to A ON for 3 seconds, then to AUTO.

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- k. On RDR LCS SVCE panel, momentarily turn the pump ON then OFF. A BLACK indication means the radar has enough fluid. A WHITE indication means the radar requires more fluid. Reservice in accordance with paragraph 7, if required.
- l. On GND PWR control panel assembly, set EXT PWR switch to OFF.
  - m. Remove electrical power (WP004 00).
- n. Reconnect plug caps (1 and 2) to FILL and RETURN quick disconnects.
  - o. Close door 6 (A1-F18AC-LMM-010).
  - p. Remove the open container from under left LEX.
- q. Power down the LCFU, stow the hoses and power cable inside unit cabinet.

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#### 9. SERVICING AND BLEEDING

#### **Support Equipment Required**

Part Number or

Type Designation Nomenclature

2001MC

Liquid Coolant Fluid Make-Up Unit

#### **Materials Required**

Specification or Part Number

Nomenclature

MIL-PRF-87252C (CAGE 81349) Fluid, Coolant

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### WARNING

035 00

Heat transfer fluid may cause eye, skin and respiratory irritation. Avoid prolonged breathing of vapors. Keep container closed. Use adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

# CAUTION

To prevent contamination of RLCS, quick disconnects must be clean and free of dirt and moisture before connecting LCFU Hoses. Inspect LCFU Hose connections to make sure they are clean and free of dirt and moisture. Use lint free rags to clean the quick disconnects.

#### NOTE

The reservoir in the radar liquid cooling centrifugal pump unit requires refilling when fluids low code 985 is displayed or when RESERVOIR LEVEL indicator on RDR LCS SVCE panel assembly is LOW WHITE.

To make sure trapped air is allowed to settle out of RCLS, allow at least 3 to 4 hours after operation of the radar, RLCS pump, or decontamination using the Liquid Coolant Filtration Unit, before doing servicing and bleeding procedure.

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#### NOTE

If Servicing and Bleeding is to be done together with aircraft Decontamination, then use all procedures outlined in paragraphs 1 thru 8.

- a. Open door 6 (A1-F18AC-LMM-010).
- b. Disconnect plug cap (1, figure 1) from FILL quick disconnect.
- c. On aircraft, clean FILL quick disconnect and fluid make-up unit (4) supply hose disconnect.
- d. Operate fluid make-up unit (4) until air is purged from supply hose.
- e. Connect fluid make-up unit (4) supply hose to aircraft FILL quick disconnect.
- f. Position an open container under aircraft BLEED PORT (bottom of left LEX).
  - g. Apply aircraft electrical power (WP004 00).
- h. On GND PWR control panel assembly, set switch 1 to A ON for 3 seconds, then to AUTO.

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NOTE

To avoid over servicing, stop operating fluid make-up unit immediately when RESERVOIR LEVEL indicator changes to FULL BLACK.

Servicing and bleeding trips maintenance code 985. Reset 985 code after completion of procedure.

Radar liquid coolant fluid level must be verified before operating pump to bleed system.

- i. Operate fluid make-up unit (4) until RESERVOIR LEVEL indicator on the RDR LCS SVCE panel assembly changes from LOW WHITE to FULL BLACK.
  - j. On RDR LCS SVCE panel assembly, set PUMP switch to ON.
- k. Open and hold BLEED VALVE until a stream of fluid, free of air, is observed and RESERVOIR LEVEL indicator on the RDR LCS SVCE panel assembly is LOW WHITE. Release BLEED VALVE.
  - 1. On RDR LCS SVCE panel assembly, set PUMP switch to OFF.
- m. Repeat steps i thru l until all air is removed. When all air is removed, make sure RESERVOIR LEVEL indicator is LOW WHITE, then service reservoir to FULL BLACK.
- n. On GND PWR control panel assembly, set EXT PWR switch to OFF.
  - o. Remove electrical power (WP004 00).
  - p. Reconnect plug cap (1 and 2) to FILL quick disconnect.

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- q. Close door 6 (A1-F18AC-LMM-010).
- r. Remove open container from under left LEX.

#### 10. FLUID SAMPLING

### **Support Equipment Required**

None

#### **Materials Required**

# Specification or Part Number

62D265-1

(CAGE 97057) (15598)

(CAGE 80132)

#### Nomenclature

Sampling Pack - Coolant



To prevent sample contamination, sampling bottle should remain in the sealed container until use is directed by a step in this procedure.

- a. Open door 6 (A1-F18AC-LMM-010).
- b. Apply electrical power (WP004 00).

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- c. On GND PWR control panel assembly, set switch 1 to A ON for 3 | seconds, then to AUTO.
- d. On RDR LCS SVCE panel assembly, set PUMP switch to ON for 3 minutes.



To prevent contamination of radar liquid cooling system, areas around BLEED PORT must be clean and free of dirt and moisture.

- e. Clean area around aircraft BLEED PORT (bottom of left LEX).
- f. Position a 2 quart container under aircraft BLEED PORT.

# WARNING

Heat Transfer fluid may cause eye, skin and respiratory irritation. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- g. Open and hold BLEED VALVE for 3 seconds. Release BLEED VALVE.
- h. Remove sampling bottle from container and remove cap from sampling bottle.
  - i. Position sampling bottle under BLEED PORT.

- j. Open and hold BLEED VALVE, fill bottle to the threaded section | of sampling bottle (NAVAIR 17-15-50.1). Release BLEED VALVE.
  - k. Withdraw sampling bottle and immediately cap sampling bottle.
  - l. On RDR LCS SVCE panel assembly, set PUMP switch to OFF.
- m. On RDR LCS SVCE panel assembly, inspect RESERVOIR LEVEL indicator for FULL BLACK. If RESERVOIR LEVEL indicator is LOW WHITE, do servicing and bleeding procedure per paragraph 9.
- n. On GND PWR control panel assembly, set EXT PWR switch to OFF.
  - o. Remove electrical power (WP004 00).
  - p. Install plug cap (1, figure 1) on FILL quick disconnect.
  - q. Close door 6 (A1-F18AC-LMM-010).
  - r. Remove open container from under left LEX.
- s. Forward sampling bottle to applicable material engineering lab for analysis (NAVAIR 17-15-50.2).

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#### 11. ORGANIZATIONAL LEVEL SERVICING

#### **Support Equipment Required**

Part Number or Type Designation

Nomenclature

LCFU-2AC-302-8

Liquid Coolant Filtration Unit

#### **Materials Required**

Specification or Part Number

Nomenclature

MIL-PRF-87252C

Fluid, Coolant

(Cage 81349)

P/N 2765 (Item No. 320-7) Filter Element

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### WARNING

Heat transfer fluid may cause eye, skin and respiratory irritation. Avoid prolonged breathing of vapors. Keep container closed. Use adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

#### 12. FLUID - REFILLING THE LCFU

#### NOTE

The intent of this section is to provide instructions on refilling the LCFU make—up reservoir with fluid at the Organizational Level.

- a. Make sure LCFU (5, figure 1) power switch is in the OFF position.
- b. Inspect LCFU (5) nitrogen pressure valve and make-up valve to make sure that they are both closed.
- c. Open LCFU (5) make-up reservoir BLEED VALVE to release any built up pressure.
- d. On LCFU (5) make-up reservoir, loosen both clamp ring bolts using a 9/16 socket and ratchet handle or flex handle.
  - e. Remove one of the clamp ring bolts to loosen clamp ring.
- f. Remove lid assembly, be careful not to tear LIP SEAL inside clamp ring.

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#### NOTE

The make-up reservoir has a capacity of about two U.S. gallons. Fluid level at the top of the reservoir sight gage equals one U.S. gallon.

- g. Slowly, pour fluid into reservoir until it gets to the INSIDE FLANGE, approximately one inch below top of the reservoir.
- h. Reinstall LCFU (5) make-up reservoir lid assembly, lip seal, and clamp ring with clamp ring bolts. Tighten bolts until they bottom out.
- i. Run LCFU (5) in Self Cycle for the prescribed time to remove possible contaminates received from the exposed reservoir and fluid handling.
- j. On completion of Self Cycle, continue with required tasks or secure the LCFU.

#### 13. NITROGEN - REFILLING LCFU BOTTLE

#### NOTE

The LCFU Nitrogen Bottle is maintained at a maximum capacity of 1800 PSI. The bottle should be refilled when the nitrogen pressure gage reads 500 PSI or less.

#### 14. Nitrogen Bottle Removal.

a. Before removing from the LCFU (5, figure 1), close the nitrogen bottle valve.

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- b. Get under the front end of the LCFU (5) and grip the system pressure line quick disconnect and pull down. This will disengage the line from the bottle assembly.
  - c. Lift the bottle and gage assembly from the LCFU (5).
- d. To refill the nitrogen bottle, send it and the attached gage assembly to the command local Liquid Oxygen Facility (LOX Farm). If required, use Local Operating Procedures to refill.

#### 15. Nitrogen Bottle Installation.

a. Align the LCFU (5, figure 1) nitrogen bottle quick disconnect through the Control Panel bushing, simultaneously pushing bottle into the casing until it bottoms out.

#### NOTE

Bottle must go all the way down to bottom of casing. If not all the way down, gage assembly may be damaged when closing control panel lid or if quick disconnect is not fully engaged.

b. Reconnect quick disconnect to system pressure line located next to LCFU (5) make—up reservoir base.

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#### 16. FILTER ELEMENT - REPLACEMENT

#### NOTE

Replacement of the LCFU first and second stage FILTER ELEMENTS is conducted at the Intermediate Maintenance Level. Return the complete unit to the Intermediate Level facility.

#### 17. LCFU - TROUBLESHOOTING TABLE

#### NOTE

Maintenance of the LCFU is conducted at the Intermediate Level. This Troubleshooting Table provides the Organizational Level operator with a quick reference for possible problems encountered during LCFU operation.

Table 1. LCFU TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Unit will not run	Blown Fuse.	Replace 0.5 or 10.0 amp fuse at electrical box.
	Make-up fluid too low.	Put 1 to 2 gallons of fluid in make-up reservoir.
Excess Pressure	Supply quick disconnect not fully engaged.	Inspect quick disconnect connection.

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Table 1. LCFU TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
	RLCS pump on while LCFU connected.	Turn off RCLS pump immediately.
No Make-up Flow	Nitrogen bottle empty.	Refill nitrogen bottle.
	Make-up reservoir empty.	Put 1 to 2 gallons of fluid in make-up reservoir.
	Nitrogen supply quick disconnect disconnected.	Inspect nitrogen supply hose quick disconnect.
Restricted or no flow to RLCS	Flow Control Handle in SELF CYCLE.	Turn Flow Control Handle to OPERATION CYCLE.
	Motor or pump not run- ning or running slow.	Inspect 110VAC, 60Hz power source.
	Fluid low in LCFU.	Transfer fluid from make-up reservoir to fil- ters.

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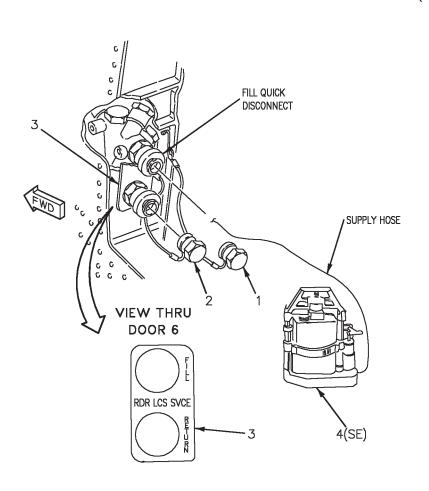
#### 18. ILLUSTRATED PARTS BREAKDOWN.

19. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

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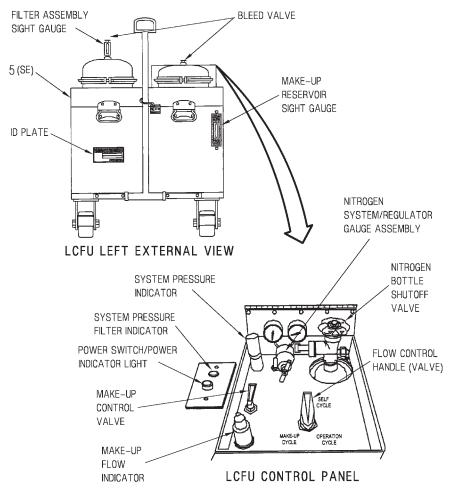


18AC-LMM-00-(34-1)41-SCAN

Figure 1. Radar Liquid Cooling System Servicing (Sheet 1)

### 035 00

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ADA542-34-2-072

Figure 1. Radar Liquid Cooling System Servicing (Sheet 2)

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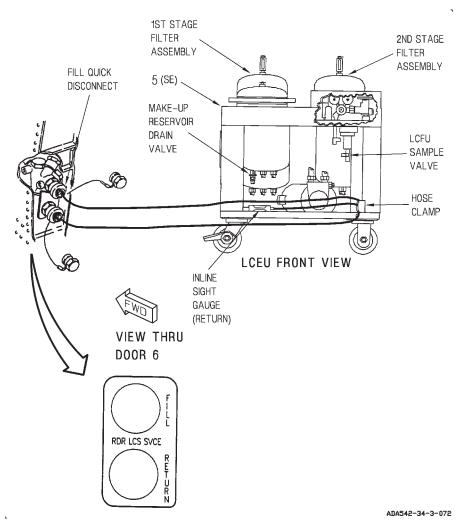
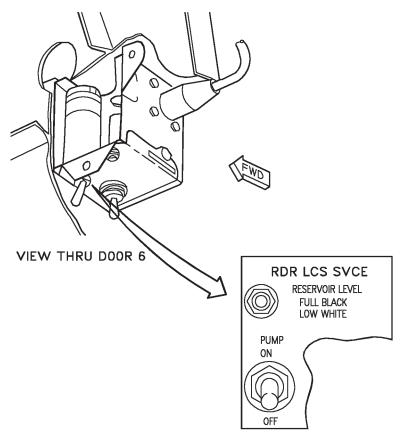


Figure 1. Radar Liquid Cooling
System Servicing (Sheet 3)

035 00

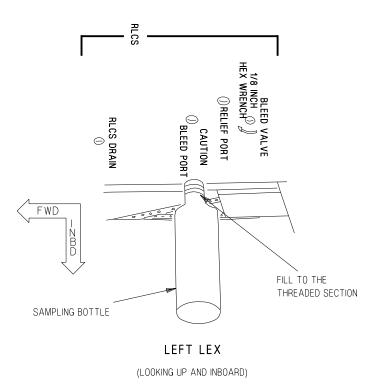
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18AC-LMM-00-(34-4)35-SCAN

Figure 1. Radar Liquid Cooling System Servicing (Sheet 4)

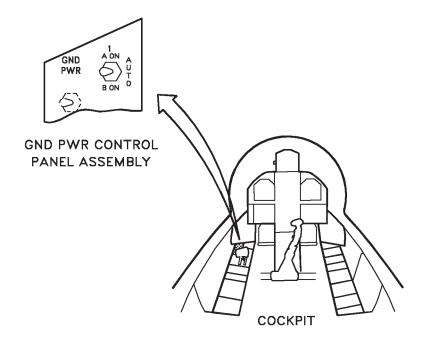
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ADA542-34-5-072

Figure 1. Radar Liquid Cooling System Servicing (Sheet 5)

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18AC-LMM-00-(34-6)35-CATI

Figure 1. Radar Liquid Cooling System Servicing (Sheet 6)

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		RADAR LIQUID COOLING SYSTEM SERVICING			
1	AE99465G	. PLUG, QUICK DISCONNECT (00624) (MCDONNELL SPEC ST7M421-8-1)	1		PAOZZ
2	AE99467G	. PLUG, QUICK DISCONNECT (00624) (MCDONNELL SPEC ST7M421-8-2)	1		PAOZZ
3	74A890050-2003	. PLATE, IDENT (76301)	1		MDOZZ
4	2001MC	. FLUID MAKE-UP UNIT, LIQUID  COOLANT (53526) (SUPPORT EQUIPMENT)			PEOGG
5	LCFU-2AC-302-8	. FILTRATION UNIT,	1		-

Figure 1. Radar Liquid Cooling System Servicing (Sheet 7)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### TRANSFER TEST - EXTERNAL FUEL TANKS

Title	WP Number
Transfer Test - External Fuel Tanks -	
F/A-18A and F/A-18B	$036 \ 01$
Transfer Test - External Fuel Tanks -	
F/A-18C and F/A-18D	$036\ 02$

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### TRANSFER TEST - EXTERNAL FUEL TANKS

EFFECTIVITY: F/A-18A AND F/A-18B

#### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000

### **Alphabetical Index**

Subject	Page No
External Fuel Tanks Transfer Test	2
External Fuel Tanks Transfer Test, Figure 1	11
External Fuel Tanks Transfer Test, Table 1	2

#### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 41	-	Throttle Thrust Sensitivity, Reduc- tion of (ECP MDA- F/A-18-00054C1)	15 Dec 86	-

#### 1. EXTERNAL FUEL TANKS TRANSFER TEST.

2. This test is an operational test and should be done after external fuel tank(s) are installed. If troubleshooting is required, refer to A1-F18AC-460-200, WP007 00.

Table 1. External Fuel Tanks Transfer Test

Procedure	Normal Indication	
Support Equipment Required		
Part Number or Type Designation	Nomenclature	
74D460108-1001 or	Fuel System Test Set	
74D460108-1003	Fuel System Test Set	
Materials Required		
None		

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
1. PREPARATION.	

#### **NOTE**

To allow enough space for external fuel tanks to transfer, internal tanks should not be refueled full. No. 2 and no. 3 fuel amount must be above fuel low level automatic transfer level ( $800 \pm 100 \text{ lb}$ ).

a. Precheck internal tanks. Refuel using electrical power (A1-F18AC-PCM-000). Allow external tanks to fill, then rotate master precheck handle down allowing internal tanks to fill. Configure aircraft as listed below:

External	Maximum
Tanks	TOTAL
Installed	<u>LBS</u>
1	8000 lb
2	6000 lb
3	4000 lb

Table 1. External Fuel Tanks Transfer Test (Continued)

(Softinger)	
Procedure	Normal Indication
b. On 161353 THRU 161944, open door 46R (A1-F18AC-LMM- 010).	
c. Hookup fuel system test set (fig 1) and cable 74D462025-1001 per substeps below:	
(1) On fuel system test set, remove J1 protective cap.	
(2) Connect test cable P1 to J1 on test set.	
(3) Connect cable P2 to 5J-R135 test receptacle.	
(4) Position test set near right wing tip.	
d. Set switches on fuel system test set as listed below:	

Table 1. External Fuel Tanks Transfer Test (Continued)

(Continueu)	
Procedure	Normal Indication
S1 - OFF	
S2 - OFF	
S5 - CLOSED	
S6 - OPEN	
S7 - WING	
S8 - XFR	
S9 - OFF	
S10 - OFF	
S11 - SEA LEVEL	
CB1 - closed	
74D460108-1003 only:	
S12 - OFF	
S13 - NORM	
S14 - ON	
S15 - ON	
e. Set switches on cockpit	
FUEL system control panel as	
listed below:	
EXT TANKS	
WING - STOP	
CTR - STOP	
DUMP - OFF	
PROBE - RETRACT	
I I	I

# Table 1. External Fuel Tanks Transfer Test (Continued)

(00)	intiliaca)	
Procedure	Normal Indication	
NOTE		
Make sure WING switch and CTR switch, on FUEL system control panel, is set to STOP and not NORM as instructed in engine operation instructions.		
Test can be done by using external air source, APU or right engine.		
f. If applicable, prepare aircraft for engine or APU operation (WP018 00).		
NOTE		
Inspect external fuel tanks for fuel leaks when doing this test.		
2. TEST.		
NOTE		
Test can be done by using external air source, APU or right engine.		

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
a. If using APU or right engine operate APU in ECS test mode (WP021 00) or start right engine and operate at ground idle (WP022 00).	Display D1 indicates 0 PSI.
b. If using external air source do substeps below:	



To prevent accumulator contamination, purge nitrogen servicing unit lines and gage assembly before use.

- (1) Purge nitrogen servicing unit lines and gage assembly.
- (2) In left main landing gear wheelwell, remove cap from ground air pressurization connector, and connect external air or 1317AS100-1 nitrogen servicing unit.

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
(3) Slowly apply 100 psi nitrogen/air pressure to system.	Display D1 indicates 0 PSI.



If FUEL QTY indicator INT pointer increases; indicating external fuel is transferring with STOP transfer selected; stop test by shutting down APU or engine (WP021 00 or WP022 00), or turn off nitrogen/air pressure.

- c. Observe cockpit FUEL QTY indicator INT pointer.
- d. On FUEL system control panel, set EXT TANKS CTR switch to OVERRIDE for 2 minutes and observe cockpit FUEL QTY indicator with selector knob set to EXT CTR.
- e. Set EXT TANKS CTR switch to STOP.

INT pointer does not increase, indicating external fuel is not transferring.

- 1. LEFT counter amount decreasing indicating centerline external fuel is transferring.
- 2. Display D1 indicates 15 to 18 PSI.

Display D1 decreases to 0 PSI. Centerline external fuel tank stops transferring.

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
f. On FUEL system control panel, set EXT TANKS WING switch to OVERRIDE for 2 minutes and observe cockpit FUEL QTY indicator with selector knob set to EXT WING.	<ol> <li>LEFT and RIGHT counter amounts decreasing, indicating left and right wing external fuel is transferring.</li> <li>Display D1 indicates 15 to 18 PSI.</li> </ol>
g. Set EXT TANKS WING switch to STOP.	Display D1 decreases to 0 PSI. Wing external fuel tanks stop transferring.
h. Reset FUEL system control panel EXT TANKS WING and CTR switches to NORM.	
i. Verify external fuel transfer as listed below:	
(1) Set cockpit FUEL QTY selector knob to EXT CTR.	LEFT counter indicates less than 100 lb.
(2) Set cockpit FUEL QTY selector knob to EXT WING.	LEFT and RIGHT counters indicate less than 100 lb. each.

Table 1. External Fuel Tanks Transfer Test (Continued)

, , , , , , , , , , , , , , , , , , , ,	
Procedure	Normal Indication
j. If applicable, shut down APU or engine (WP021 00 or WP022 00).	
k. If applicable, turn off nitrogen/air pressure and discon- nect hose from ground air pres- surization connector and install cap.	
3. FINAL.	
a. Disconnect fuel system test set and cable.	
b. On 161353 THRU 161944, close door 46R (A1-F18AC-LMM- 010).	
c. Refuel aircraft (A1-F18AC-PCM-000).	

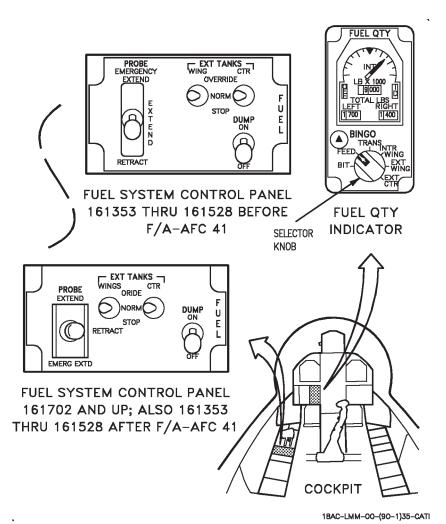


Figure 1. External Fuel Tanks Transfer Test (Sheet 1)

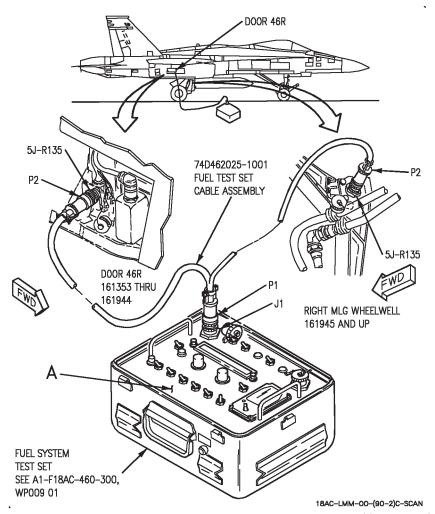


Figure 1. External Fuel Tanks Transfer Test (Sheet 2)

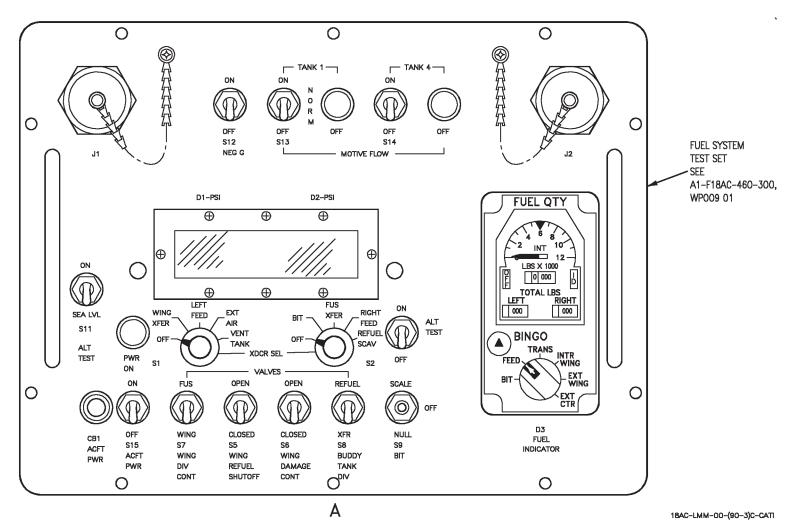
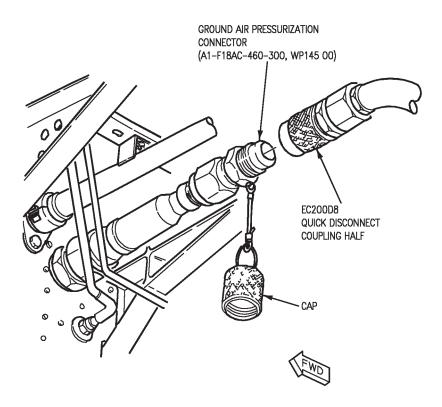


Figure 1. External Fuel Tanks Transfer Test (Sheet 3)



LEFT MAIN LANDING GEAR WHEELWELL

18AC-LMM-00-(90-4)E-SCAN

Figure 1. External Fuel Tanks Transfer Test (Sheet 4)

A1-F18AC-SCM-000

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Software Configuration Manual

Page 1

### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### TRANSFER TEST - EXTERNAL FUEL TANKS

EFFECTIVITY: F/A-18C AND F/A-18D

### Reference Material

	0 00111 000
Alphabetical Index	
Subject	Page No.
External Fuel Tanks Transfer Test	2

### **Record of Applicable Technical Directives**

External Fuel Tanks Transfer Test, Figure 1.....

External Fuel Tanks Transfer Test, Table 1.....

None

### 1. EXTERNAL FUEL TANKS TRANSFER TEST.

2. This test is an operational test and should be done after external fuel tank(s) are installed. If troubleshooting is required, refer to A1-F18AE-460-200, WP010 00.

Table 1. External Fuel Tanks Transfer Test

Procedure	Normal Indication	
Support Equipment Required		
None		
Materials Required		
None		
1. PREPARATION.		
NO	OTE	
· · · · · · · · · · · · · · · · · · ·	hould not be refueled full. No. must be above fuel low level	

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication	
a. Precheck internal tanks. Refuel using electrical power (A1-F18AC-PCM-000). Allow external tanks to fill, then rotate master precheck handle down allowing internal tanks to fill. Configure aircraft as listed below:		
$ \begin{array}{ccc} External & Maximum \\ Tanks & TOTAL \\ \underline{Installed} & LBS \\ \hline 1 & 8000 \text{ lb} \\ 2 & 6000 \text{ lb} \\ 3 & 4000 \text{ lb} \\ \end{array} $		
b. Set up left and right Digital Display Indicators for displays (WP008 00).		
c. Press and release MENU pushbutton switch until BIT pushbutton switch option appears.		
d. On left DDI press FUEL pushbutton switch.		

Table 1. External Fuel Tanks Transfer Test (Continued)

Test (Continued)			
Procedure	Normal Indication		
e. On aircraft with Digital Data Computer CONFIG/IDENT 89C (A1-F18AC-SCM-000), do sub- steps below:			
(1) On right DDI, press BIT pushbutton switch.			
(2) On right DDI, press MAINT pushbutton switch.			
(3) On right DDI, press FXFR pushbutton switch.			
f. On aircraft with Digital Data Computer CONFIG/IDENT 91C AND UP (A1-F18AC-SCM-000), do substeps below:			
(1) On right DDI, press BIT pushbutton switch.			
(2) On right DDI, press STA- TUS MONITOR pushbutton switch.			

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
(3) On right DDI, press FXFR pushbutton switch.	
g. Set switches on cockpit FUEL system control panel as listed below:	
EXT TANKS WING - STOP CTR - STOP DUMP - OFF PROBE - RETRACT	

#### NOTE

On FUEL system control panel, make sure WING switch and CTR switch are set to STOP and not NORM as instructed in engine operation instructions.

Test can be done by using external air source, APU or right engine.

h. If applicable, prepare aircraft for engine or APU operation (WP018 00).

Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication	
NOTE		
Inspect external fuel tar this test.	nks for fuel leaks when doing	
2. TEST.		
NOTE		
Test can be done by using external air source, APU or right engine.		
a. If using APU or right engine operate APU in ECS test mode (WP021 00) or start right engine and operate at ground idle (WP022 00).	On right DDI, EXT AIR indicates 0.	
b. If using external air source do substeps below:		

## Table 1. External Fuel Tanks Transfer

### Test (Continued) **Procedure Normal Indication**

To prevent accumulator contamination, purge nitrogen servicing unit lines and gage assembly before use.

- (1) Purge nitrogen servicing unit lines and gage assembly.
- (2) In left main landing gear wheelwell, remove cap from ground air pressurization connector and connect external air or 1317AS100-1 nitrogen servicing unit.
- (3) Slowly apply 100 psi nitrogen/air pressure to system.

On right DDI, EXT AIR indicates 0.

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## Table 1. External Fuel Tanks Transfer Test (Continued)

# Procedure Normal Indication

## CAUTION

If INTERNAL fuel amount on DDI increases (indicating external fuel is transferring with STOP transfer selected) stop test by shutting down APU or engine (WP021 00 or WP022 00) or turn off nitrogen/air pressure.

- c. On left DDI observe INTER-NAL fuel amount.
- d. On FUEL system control panel, set EXT TANKS CTR switch to OVERRIDE for 2 minutes and observe left and right DDI.

e. Set EXT TANKS CTR switch to STOP and observe right DDI.

- INTERNAL fuel amount does not increase, indicating external fuel is not transferring.
- 1. On left DDI, CL fuel amount decreasing indicating centerline external fuel is transferring.
- 2. On right DDI, EXT AIR indicates 15 to 18.
- 3. On left DDI, EXT TANK caution appears.

EXT AIR indicates 0 indicating centerline external fuel tank stopped transferring.

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Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
f. Set EXT TANKS WING switch to OVERRIDE for 2 minutes and observe left and right DDI.	1. On left DDI, L EXT and R EXT fuel amounts decreasing, indicating left and right wing external fuel is transferring.
	2. On right DDI, EXT AIR indicates 15 to 18.
	3. On left DDI, EXT TANK caution appears.
g. Set EXT TANKS WING switch to STOP and observe right DDI.	EXT AIR indicates 0 indicating wing external fuel tanks stopped transferring.
h. Reset FUEL system control panel EXT TANKS WING and CTR switches to NORM.	
i. Shut down left and right DDI (WP008 00).	
j. If applicable shut down APU or engine (WP021 00 or WP022 00).	

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Table 1. External Fuel Tanks Transfer Test (Continued)

Procedure	Normal Indication
k. If applicable, turn off nitrogen/air pressure and discon- nect hose from ground air pres- surization connector and cap.	
3. FINAL.	
a. Refuel aircraft (A1-F18AC-PCM-000).	

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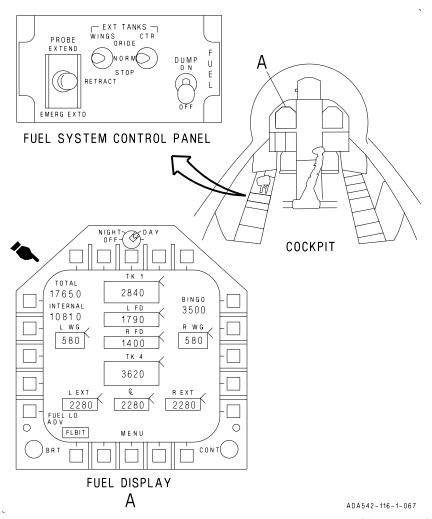
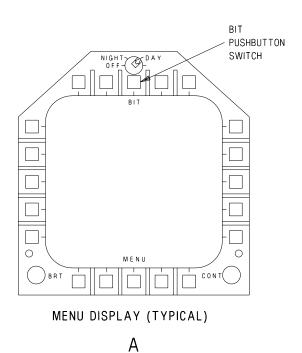
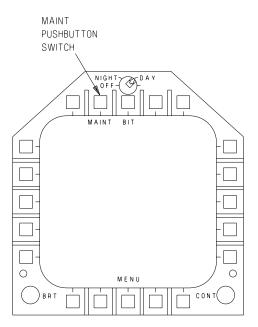


Figure 1. External Fuel Tanks Transfer Test (Sheet 1)



18AC-LMM-00\_116-2-41

Figure 1. External Fuel Tank Transfer Test (Sheet 2)

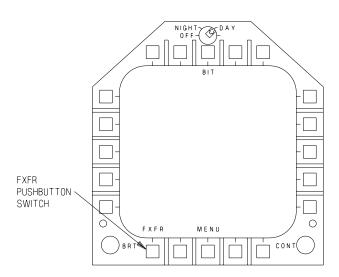


BIT DISPLAY - ON AIRCRAFT WITH DIGITAL DATA COMPUTER CONFIG/IDENT 89C (A1-F18AC-SCM-000) (TYPICAL)

Α

18AC-LMM-00\_116-3-41

Figure 1. External Fuel Tanks Transfer Test (Sheet 3)

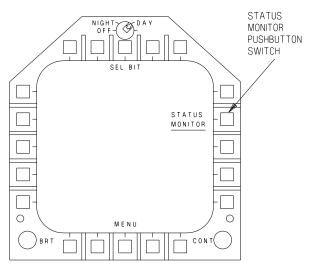


MAINTENANCE BIT DISPLAY - ON AIRCRAFT WITH DIGITAL DATA COMPUTER CONFIG/IDENT 89C (A1-F18AC-SCM-000) (TYPICAL)

Α

18AC-LMM-00\_116-4-41

Figure 1. External Fuel Tansk Transfer Test (Sheet 4)

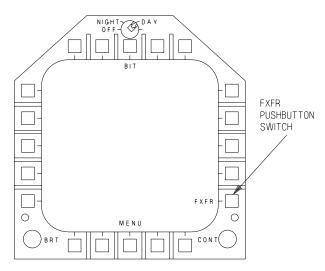


BIT CONTROL DISPLAY - ON AIRCRAFT WITH DIGITAL DATA COMPUTER CONFIG/IDENT 91C AND UP (A1-F18AC-SCM-000) (TYPICAL)

Α

18AC-LMM-00\_116-5-41

Figure 1. External Fuel Tanks Transfer Test (Sheet 5)

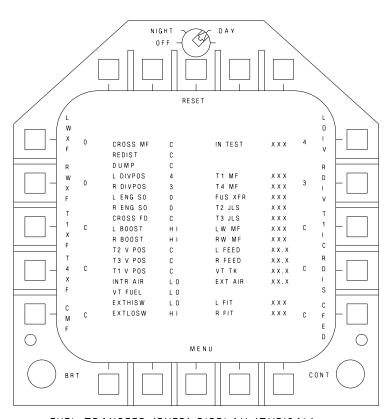


STATUS MONITOR DISPLAY - ON AIRCRAFT WITH DIGITAL DATA COMPUTER CONFIG/IDENT 91C AND UP (A1-F18AC-SCM-000) (TYPICAL)

Α

18AC-LMM-00\_116-6-41

Figure 1. External Fuel Tanks Transfer Test (Sheet 6)

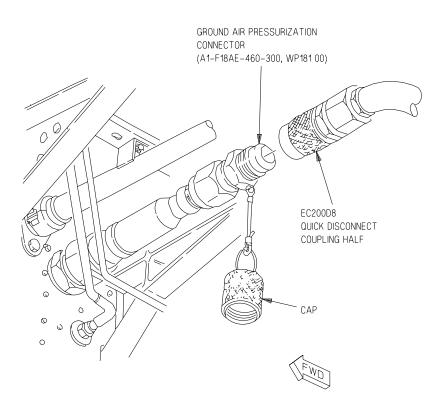


FUEL TRANSFER (FXFR) DISPLAY (TYPICAL)

Α

18AC-LMM-00\_116-7-41

Figure 1. External Fuel Tanks Transfer Test (Sheet 7)



LEFT MAIN LANDING GEAR WHEELWELL

18 A C - L M M - 0 0 \_ 116 - 8 - 4 1

Figure 1. External Fuel Tanks Transfer Test (Sheet 8)

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#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

## ELECTRICAL BONDING, SEALING AND ELECTROMAGNETIC COMPATIBILITY (EMC) PROTECTION

### **Reference Material**

Bonding, Electrical, and Lighting Protection,	
for Aerospace Systems	MIL-STD-464
Aircraft Electric and Electronic Wiring	NAVAIR 01-1A-505

### **Alphabetical Index**

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EMI Cover Assembly	13
Damage Limits	14

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### **Record of Applicable Technical Directives**

#### None

### 1. ELECTRICAL BONDING AND SEALING.

2. **ELECTRICAL BONDING.** Electrical bonding gets the required electrical conductivity between a component and the structure to which the component is attached. Bonding classes, applications and resistances are listed in MIL-STD-464 and NAVAIR 01-1A-505.

### **Support Equipment Required**

None

### **Materials Required**

Specification or Part Number	Nomenclature
CCC-C-440 TYPE 1	Cheesecloth
CLASS 1	
(CAGE 81348)	
MIL-C-81706	Corrosion Resist
Class 3	(Alodine)
Form 2	
(CAGE 81349)	
30401720	Cleaning Compound
(CAGE 94058)	

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### Change 3

### Materials Required (Continued)

Specification or Part Number	Nomenclature		
-	Acid Resistant		
	Brush		
-	Aluminum Oxide		
	Cloth (300 Grit)		
	(Stainless Steel Wool)		
-	Nonmetalic		
	Scraper		

Change 3

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Metal tools must not be used for removing sealant as the structure may be scratched resulting in oxidation.

a. Remove sealant using a nonmetalic scraper.

### WARNING

Cleaning compound may cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

b. Clean contact surfaces with clean cheesecloth moistened with cleaning compound.

#### **NOTE**

Allow cleaning compound to air dry for 15 minutes before next step.

c. Inspect mating surfaces of components to be bonded. Mating surfaces must be free of primer, paint, grease, and corrosion. If surfaces have been treated previously and are already clean, go to step f.

Change 3

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To prevent elimination of EMI protection, do not use abrasive materials to clean tinned surfaces.

#### NOTE

Cockpit console panels contain tinned surfaces of a yellowish color.

d. To prepare cockpit console and instrument panels surfaces for bonding, do substeps below:

### **WARNING**

Cleaning compound may cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- (1) Apply cleaning compound with brush or cheesecloth saturated with solvent. Clean by scrubbing, or wiping.
  - (2) Continue cleaning until all contamination is removed.
- (3) Wipe surface with cleaning compound using a clean cheesecloth.
  - (4) Dry surface with clean cheesecloth.

Change 3

037 00 Page 7



Abrasives such as emery cloth, sandpaper, or regular steel wool will start corrosion.

#### NOTE

Allow cleaning compound to air dry for 15 minutes before next step.

- e. To prepare component surfaces for bonding other than cockpit console and instrument panels, do substeps below:
- (1) Remove non-conductive surface materials such as anodize, oxides, paint, primer, or lacquer from contact areas using aluminum oxide cloth (300 grit) or stainless steel wool.
- (2) Make a fine, clean, smooth surface without removing excessive metallic material.

### WARNING

Cleaning compound may cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

(3) Remove grit and dust from areas to be bonded using cleaning compound.

Change 16

037 00 Page 8

### WARNING

Corrosion resist is an oxidizer, contact with other material may cause fire. Causes eye, skin burns. May be fatal if swallowed. Harmful if absorbed through skin. May cause allergic respiratory and skin reaction. May cause eye, skin and respiratory irritation. Contains material which can cause cancer. Keep from contact with clothing and other combustible materials. Do not store near combustible materials. Do not breathe dust (vapor, mist, gas). Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Store in tightly closed container. Wash thoroughly after handling.

#### NOTE

Allow cleaning compound to air dry for 15 minutes before next step.

- (4) On aluminum alloys, spread a continuous thin layer of alodine on contact areas using an acid-resistant brush.
- (5) After approximately 5 minutes, wipe off excess solution using a clean cheesecloth moistened with water. Use as little pressure as possible.
- (6) Make sure water moistened parts are dried before cleaning with cleaning compound.

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037 00 Page 8A/(8B blank)

WARNING

Cleaning compound may cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

f. In addition to previous preparation, just before mating of contact areas, wipe area with clean cheesecloth moistened with cleaning

037 00 Page 9

compound. Let area dry thoroughly to prevent trapping solvent in assembled joint.

#### NOTE

Allow cleaning compound to air dry for 15 minutes before next step.

g. Assemble bonded connections.

#### 3. SEALING.

Consolding

Change 3

### **Support Equipment Required**

None

### **Materials Required**

or Part Number	Nomenclature
CCC-C-440 TYPE 1	Cheesecloth
CLASS 1	
(CAGE 81348)	
MIL-S-8802	Sealing Compound
TY2CLA-1/2	(Sealant)
(CAGE 81349)	
PR-182	Sealing Compound Primer
(CAGE ONYS9)	

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### Materials Required (Continued)

Specification		
or Part	Number	

#### **Nomenclature**

30401720 (CAGE 94058) Cleaning Compound

Brush (1/4 or 1/2 inch paint type)

### **WARNING**

Cleaning compound may cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

a. Clean area to be sealed using a clean cheesecloth moistened with cleaning compound. Before the solvent evaporates, wipe from surface with a clean dry cheesecloth.

Change 3

Page 11

b. Repeat step a until no soil is visible on cheesecloth.

### **WARNING**

Sealing compound primer causes eye, skin burns. May cause allergic skin reaction. May cause eye, skin and respiratory irritation. Do not get in eyes, on skin, or on clothing. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

### **NOTE**

Allow cleaning compound to air dry for 15 minutes before next step.

c. If titanium is the substrate material, wipe a thin coat over the clean dried surface with cheesecloth moistened with sealing compound primer and allow to air dry.

#### NOTE

Allow sealing compound primer to air dry for 5 minutes before next step.

d. Wipe surface dry with clean dry cheesecloth.

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# **WARNING**

Sealant is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

#### NOTE

Allow sealing compound primer to air dry for 10 minutes before next step.

- e. Apply a brush coat of sealant around completed bond.
- f. Apply sample of sealant to a piece of scrap metal. Keep sample in same area as repair.
  - g. Let repair cure until sample is rubber-like.

## 4. ELECTROMAGNETIC COMPATIBILITY (EMC) PROTECTION.

5. The aircraft is an EMC designed and lightning protected aircraft. This design allows operation on a carrier deck and in all weather. These design features must be maintained to make sure the total system EMC integrity is maintained. In general, much of the EMC protection is built-in. However, some areas require inspection. Specifically, some areas and components are tin plated at attach point locations and are left unpainted to provide built-in electrical bonding. These areas shall never be painted, but should corrosion occur, they shall be cleaned. Many components have stainless steel inserts at their mounting points which

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Change 3

shall remain unpainted. (Also, every inlet screen doubles as an EMI screen.) This is done by making sure the screen edges are electrically bonded to the airframe or surrounding structure. Specific component maintenance instructions are contained in the applicable system maintenance manuals.

#### 6. EMI COVER ASSEMBLY.

## **Support Equipment Required**

None

## **Materials Required**

None

#### 7. REMOVAL.

- a. Loosen upper equipment bay EMI cover (1, figure 1) by peeling hook fasteners on EMI cover from hook fasteners on edge of equipment bay.
  - b. Remove retainer (2) and attaching parts securing EMI cover (1).

#### 8. INSTALLATION.

- a. Install retainer (2, figure 1) and attaching parts securing EMI cover (1).
- b. Tighten upper equipment bay EMI cover (1) by pressing hook fasteners on edge of EMI cover to hook fasteners on edge of equipment bay.

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#### 9. DAMAGE LIMITS.

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a. Any cuts, tears or holes in screen with diameter of 1 inch or more will require repair of EMI cover (A1-F18AC-SRM-220, WP036 00 or A1-F18AE-SRM-650, WP039 00).

## 10. RADIO FREQUENCY GROUNDING CONTACT STRIP.

## **Support Equipment Required**

None

**Materials Required** 

None

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037 00

#### 11. REMOVAL.

# WARNING

EMI Fingers are made of beryllium copper, a beryllium compound. Beryllium compounds are extremely toxic, and may enter the body through ingestion, inhalation of dusts and fumes, and may act locally on the skin. Beryllium compounds will cause serious injury if not handled properly. Do not grind or file on components constructed from beryllium compounds. If abrasions, cuts or sores are present on hands, rubber gloves must be worn when handling components constructed from beryllium compounds. Final disposal should be done in a manner that does not result in incineration of beryllium compounds. If material enters skin or contacts eyes, flush the area immediately with water and report to medical facility.

- a. Contact strip with three or more broken fingers must be replaced.
- b. Remove nut, washers, pin and contact strip (figure 2).

037 00 Page 16

#### 12. INSTALLATION.

Change 3

## WARNING

EMI Fingers are made of beryllium copper, a beryllium compound. Beryllium compounds are extremely toxic, and may enter the body through ingestion, inhalation of dusts and fumes, and may act locally on the skin. Beryllium compounds will cause serious injury if not handled properly. Do not grind or file on components constructed from beryllium compounds. If abrasions, cuts or sores are present on hands, rubber gloves must be worn when handling components constructed from beryllium compounds. Final disposal should be done in a manner that does not result in incineration of beryllium compounds. If material enters skin or contacts eyes, flush the area immediately with water and report to medical facility.

#### NOTE

Make sure corrosion prevention of fasteners and attaching parts is done during installation (WP048 00).

- a. Prepare mating surfaces of contact strip, guide pin, and aircraft structure for electrical bond, this WP.
  - b. Install contact strip and guide pin (figure 2).
- c. Make sure surfaces of contact strip and guide pin remain free of corrosion prevention materials.

# A1-F18AC-LMM-000 Change 3

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#### 13. ILLUSTRATED PARTS BREAKDOWN.

14. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

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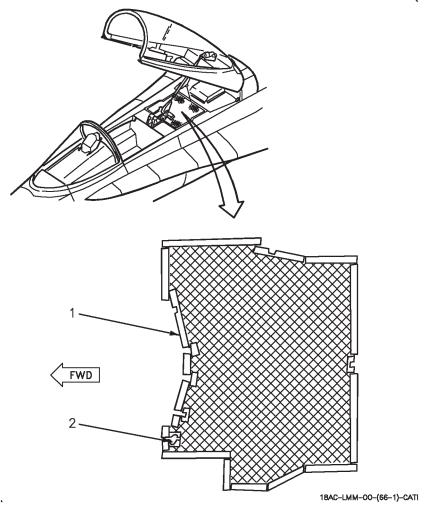


Figure 1. EMI Cover Assembly (Sheet 1)

037 00

Change 3 Page 19

INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
1	74A314108-2243	EMI COVER ASSEMBLY	1		PA000
	74A314108-2175	. SHIELD ASSEMBLY, EMI - UPPER EQUIPMENT BAY (EMI COVER) (76301)	1	*	PA000
	74A314108-2093	. SHIELD ASSEMBLY, EMI - UPPER  EQUIPMENT BAY (EMI COVER)  (76301) (USE UNTIL EXHAUSTED)	1	A	PA000
2	74A314108-2233 NAS673V4 AN960JD416L	RETAINER (76301)			MGOZZ PAOZZ PAOZZ

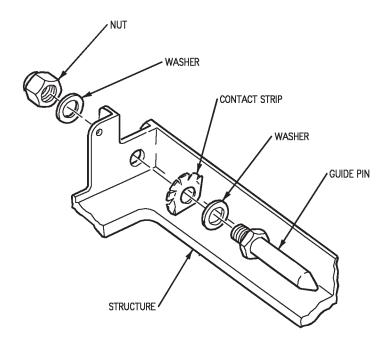
CODE USABLE ON MODEL

A 161353 THRU 161519 F/A-18A

Figure 1. EMI Cover Assembly (Sheet 2)

<sup>\*</sup> ALTERNATE OR EQUIVALENT PARTS. (WP002 00)

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18AC-LMM-00-(96-1)-CATI

Figure 2. Radio Frequency Ground Contact Strip

038 00

Page 1

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **JACKING**

## **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Airborne Weapons/Stores Loading Manual	A1-F18AE-LWS-000
Plane Captain Manual	A1-F18AC-PCM-000
General Aircraft Information	A1-F18AC-GAI-000
Weight and Balance Data	NAVAIR 01-1B-40

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Support Equipment Required	22

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# **Record of Applicable Technical Directives**

None

### 1. AIRCRAFT JACKING WITHOUT CENTERLINE STORES.

## **Support Equipment Required**

Part Number or Type Designation	Nomenclature
270AS100	20 Ton Tripod Hydraulic Jack
782D1100	20 Ton (T20-3FH) Tripod Jack (2)
61A101D	Aircraft Tiedown (AR)

## **Materials Required**

None

038 00 Page 4

#### 2. JACKING.

Change 5

a. If jacking aircraft in a hangar, make sure there is enough height for top of tail to clear hangar ceiling and obstructions when aircraft is jacked.

## WARNING

To prevent death or injury to personnel and damage to equipment, external weapons chaff/flares and bomb rack/launcher impulse cartridges must be removed and M61A1 gun clear and safe.

- b. Remove external weapons (A1-F18AE-LWS-000).
- c. Clear and safe M61A1 gun (A1-F18AE-LWS-000).



To prevent damage to aircraft, minimum structural access doors must be installed.

- d. Make sure minimum structural access doors required for jacking at wing and forward fuselage jack pads are installed, (table 1, figure 6, WP038 01).
- e. Door 1 (radome) must be closed and secured if installed. Radome may be opened after jacking (A1-F18AC-LMM-010).



To prevent aircraft structural damage, do not jack aircraft if weight exceeds 39,000 pounds.

#### NOTE

A fully fueled aircraft with survival equipment, gun (no ammo), no armament or external stores other than a fully fueled centerline tank and either four wing pylons or two empty external wing tanks weighs less than 39,000 pounds (maximum aircraft weight for jacking).

- f. For any aircraft configuration other than above, refer to table 1.
- g. Open access doors 16, 107L and 107R (A1-F18AC-LMM-010).
- h. Position 782 D<br/>1100 jack under each wing jack pad (figure 1, WP038  $\,$  01).
  - i. Position 270AS100 jack under forward fuselage jack pad.



To prevent damage to aircraft, make sure jack screw extensions are extended enough to prevent jack rams from contacting tie down rings.

To prevent aircraft from falling do not turn out 270AS100 jack screw extension more than 6 inches and 782D1100 jack screw extensions more than 15.5 inches. Make sure jack ram locknuts are near locked position.

- j. Turn out jack screw extensions until firm against jack pads.
- k. Afloat, tiedown jacks.



To prevent damage to aircraft, EMERG BRK/PARK BRK handle must be in before jacking aircraft.

- l. Make sure EMERG BRK/PARK BRK handle is in.
- m. Remove chocks.



To prevent damage to nose wheelwell Digital Display Indicator, make sure NLG wheel and tire assembly is centered.

- n. Afloat, jack aircraft until tires clear deck by 3 inches minimum. Raise jacks evenly loosening aircraft tiedowns as aircraft is raised and center NLG wheel and tire assembly by manually moving launch bar side to side until launch bar is centered. Lateral travel when launch bar is centered will be approximately 1° maximum on nose wheel steering index decal located on the NLG. Turn down jack ram locknuts as jacks are raised. Monitor top of tail for clearance.
- o. Ashore, jack aircraft until tires clear deck by 3 inches minimum. Raise jacks evenly and center NLG wheel and tire assembly by manually moving launch bar side to side until launch bar is centered. Lateral travel when launch bar is centered will be approximately 1° maximum on nose wheel steering index decal located on the NLG. Turn down jack ram locknuts as jacks are raised. Watch top of tail for clearance.
  - p. Make sure jack ram locknuts are in the locked position.
  - q. Afloat, adjust aircraft tiedowns.

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#### 3. LOWERING.

a. Make sure landing gear is down and locked.

## WARNING

Make sure landing gear safety pins and actuator ground safety devices are installed prior to lowering aircraft off jack stands.

a1. Install landing gear safety pins and actuator ground safety devices (A1-F18AC-PCM-000).



To prevent damage to aircraft, minimum structural access doors must be installed.

- b. Make sure minimum structural access doors required for jacking at wing and forward fuselage jack pads are installed, (table 1, figure 6, WP038 01).
- c. Door 1 (radome) must be closed and secured if installed (A1-F18AC-LMM-010).

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To prevent possible damage to aircraft or equipment, jack handle must be removed from jack before lowering the aircraft.

- d. Remove jack handles from jacks.
- e. Clear area under aircraft.



To prevent damage to aircraft, EMERG BRK/PARK BRK handle must be in before lowering aircraft.

f. Make sure EMER BRK/PARK BRK handle is in.



To prevent damage to aircraft, when jacking on hangar deck, raise jacks only enough to loosen jack ram locknuts while observing top of tail for clearance with overhead obstructions.

To keep aircraft from falling, if jack failure occurs, make sure jack ram locknuts are near locked position.

#### **NOTE**

When major components i.e., (Ejection seat, Gun and/or Radar) have been removed while aircraft is on jacks, there may not be enough weight forward to compress the nose gear, giving the appearance that the aircraft is tilting back during lowering.

- g. Loosen jack ram locknuts.
- h. Afloat, open each jack release valve and lower aircraft evenly and slowly, loosening jack ram locknuts and tightening aircraft tiedowns as aircraft is lowered.

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- i. Ashore, open each jack release valve and lower aircraft evenly and slowly while loosening jack ram locknuts.
  - j. When pressure is off jacks, turn in jack screw extensions.
  - k. Position chocks against wheels.
- k1. Rotate EMERG BRK/PARK BRK control  $90\,^{\circ}$  CCW and pull to set parking brake.
  - 1. Afloat, remove tiedowns from jacks.
  - m. Remove jacks from under aircraft.
  - n. Afloat, adjust aircraft tiedowns.

Part Number or

o. Close access doors 16, 107L and 107R (A1-F18AC-LMM-010).

#### 4. AIRCRAFT JACKING WITH CENTERLINE STORES.

## Support Equipment Required

Type Designation	Nomenclature
270AS100	20 Ton Tripod
61A101D	Hydraulic Jack (2) Aircraft Tiedown (AR)
74D110002-1001	Aircraft Forward-in-Place
	CL FUS Store
	Jacking Beam

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## **Support Equipment Required (Continued)**

Part Number or Type Designation

**Nomenclature** 

782D1100

20 Ton (T20-3FH) Tripod Jack (2)

## **Materials Required**

None

### 5. JACKING.

a. If jacking aircraft in a hangar, make sure there is enough height for top of tail to clear hangar ceiling and obstructions when aircraft is jacked.

## WARNING

To prevent death or injury to personnel and damage to equipment, external weapons chaff/flares and bomb rack/launcher impulse cartridges must be removed and M61A1 gun clear and safe.

- b. Remove external weapons (A1-F18AE-LWS-000).
- c. Clear and safe M61A1 gun (A1-F18AE-LWS-000).

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# CAUTION

To prevent damage to aircraft, minimum structural access doors must be installed.

- d. Make sure minimum structural access doors required for jacking at wing and forward fuselage jack pads are installed, (table 1, figure 6, WP038 01).
- e. Door 1 (radome) must be closed and secured if installed. Radome may be opened after jacking (A1-F18AC-LMM-010).



To prevent aircraft structural damage, do not jack aircraft if weight exceeds 39,000 pounds.

#### **NOTE**

A fully fueled aircraft with survival equipment, gun (no ammo), no armament or external stores other than a fully fueled centerline tank and either four wing pylons or two empty external wing tanks weighs less than 39,000 pounds (maximum aircraft weight for jacking).

- f. For any aircraft configuration other than above, refer to table 1.
- g. Open access doors 16, 107L and 107R (A1-F18AC-LMM-010).



To prevent aircraft from falling, do not turn out 270AS100 jack screw extensions more than 6 inches.

- h. Adjust two 270AS100 jacks height to approximately 50 inches and position jacks on each side of forward fuselage jacking pad, (figure 2, WP038 01).
- i. Insert jacking beam (1) between fuselage and centerline stores and set on  $270 \mathrm{AS} 100$  jacks.
- j. Align jacking beam (1) center pad directly below forward fuselage jack pad and raise 270AS100 jacks until jacking beam center pad is firmly against forward fuselage jack pad.



To prevent damage to aircraft, make sure 782D1100 jack screw extensions are extended enough to prevent jack rams from contacting tie down rings.

To prevent aircraft from falling, do not turn out 782D1100 jack screw extensions more than 15.5 inches.

- k. Position 782D1100 jack below each wing jack pad and turn out jack screw extensions until firm against jack pads.
  - l. Afloat, tiedown jacks.

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# CAUTION

To keep aircraft from falling if jack failure occurs, make sure jack ram locknuts are near locked position.

To prevent damage to aircraft, EMERG BRK/PARK BRK handle must be in before jacking aircraft.

- m. Make sure EMERG BRK/PARK BRK handle is in.
- n. Remove chocks.



To prevent damage to nose wheelwell Digital Display Indicator, make sure NLG wheel and tire assembly is centered.

o. Afloat, jack aircraft until tires clear deck by 3 inches minimum. Raise jacks evenly loosening aircraft tiedowns as aircraft is raised and center NLG wheel and tire assembly by manually moving launch bar side to side until launch bar is centered. Lateral travel when launch bar is centered will be approximately 1° maximum on nose wheel steering index decal located on the NLG. Turn down jack ram locknuts as jacks are raised. Monitor top of tail for clearance.

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- p. Ashore, jack aircraft until tires clear deck by 3 inches minimum. Raise jacks evenly and center NLG wheel and tire assembly by manually moving launch bar side to side until launch bar is centered. Lateral travel when launch bar is centered will be approximately 1° maximum on nose wheel steering index decal located on the NLG. Turn down jack ram locknuts as jacks are raised. Monitor top of tail for clearance.
  - q. Make sure jack ram locknuts are in locked position.
  - r. Afloat, adjust tiedowns.

#### 6. LOWERING.

a. Make sure landing gear is down and locked.

## **WARNING**

Make sure landing gear safety pins and actuator ground safety devices are installed prior to lowering aircraft off jack stands.

a1. Install landing gear safety pins and actuator ground safety devices (A1-F18AC-PCM-000).

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To prevent damage to aircraft, minimum structural access doors must be installed.

- b. Make sure minimum structural access doors required for jacking at wing and forward fuselage jack pads are installed, (table 1, figure 6, WP038 01).
- c. Door 1 (radome) must be closed and secured if installed (A1-F18AC-LMM-010).



To prevent damage to aircraft or equipment, jack handle must be removed from jack before lowering aircraft.

- d. Remove jack handle from jacks.
- e. Clear area under aircraft.



To prevent damage to aircraft, EMERG BRK/PARK BRK handle must be in before lowering aircraft.

f. Make sure EMER BRK/PARK BRK handle is in.

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To prevent damage to aircraft, when jacking on hangar deck, raise jacks only enough to loosen jack ram locknuts while observing top of tail for clearance with overhead obstructions.

To keep aircraft from falling, if jack failure occurs, make sure jack ram locknuts are near locked position.

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#### NOTE

When major components i.e., (Ejection seat, Gun and/or Radar) have been removed while aircraft is on jacks, there may not be enough weight forward to compress the nose gear, giving the appearance that the aircraft is tilting back during lowering.

- g. Loosen jacks ram locknuts.
- h. Afloat, open each jack release valve and lower aircraft evenly and slowly, until jacking beam (1, figure 2, WP038 01) can be removed, loosening jack ram locknuts and tightening aircraft tiedowns as aircraft is lowered.
- i. Ashore, open each jack release valve and lower aircraft evenly and slowly while loosening jack ram locknuts until jacking beam (1) can be removed.
  - j. Remove jacking beam (1).
  - k. Position chocks against wheels.
- k1. Rotate EMERG BRK/PARK BRK control 90° CCW and pull to set parking brake.
  - l. Afloat, remove tiedowns from jacks.
  - m. Turn in 270AS100 jack screw extensions and remove jacks.
- n. When pressure is off 782D1100 jacks turn in jack screw extensions and remove jacks.
  - o. Afloat, adjust aircraft tiedowns.

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p. Close access doors 16, 107L and 107R (A1-F18AC-LMM-010).

#### 7. MLG JACKING.

## **Support Equipment Required**

Part Number or Type Designation	Nomenclature
1128AS100	20 Ton Hydraulic Hand Jack
74D110006-1001	Landing Gear Aircraft Ground Safety Pin

## **Materials Required**

None

#### 8. JACKING.

#### NOTE

The MLG has two jack pads. One is on the side of the MLG trunnion assembly, the other one the end of the MLG axle lever assembly (figure 3, WP038 01).

a. Install landing gear aircraft ground safety pin in nosewheel steering power unit (A1-F18AC-PCM-000).



To prevent damage to aircraft, minimum structural access doors must be installed.

- b. Make sure minimum structural access doors required for jacking at landing gear are installed, (table 2, figure 6, WP038 01).
- c. Door 1 (radome) must be closed and secured if installed. Radome may be opened after jacking (A1-F18AC-LMM-010).



To prevent damage to aircraft or equipment, be sure the other wheels are chocked before removing chocks from wheel being jacked.

- d. Remove chocks from wheel being jacked.
- e. Position 20 ton hydraulic hand jack (1, figure 3, WP038  $\,$ 01) under jack pad.



To prevent aircraft from falling, do not turn out jack (1) screw extension more than 3.25 inches.

f. Turn out jack (1) screw extension until firm against jack pad.

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- g. Afloat, loosen aircraft tiedowns as MLG is jacked. Jack MLG to minimum required height.
  - h. Ashore, jack MLG to minimum required height.
  - i. Afloat, adjust aircraft tiedowns.

#### 9. LOWERING.



To prevent damage to aircraft, minimum structural access doors must be installed.

a. Make sure minimum structural access doors required for jacking at landing gear are installed, (table 2, figure 6, WP038 01).

# WARNING

Make sure landing gear safety pins and actuator ground safety devices are installed prior to lowering aircraft off jack stands.

- a1. Install landing gear safety pins and actuator ground safety devices (A1-F18AC-PCM-000).
- b. Door 1 (radome) must be closed and secured if installed (A1-F18AC-LMM-010).

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To prevent possible damage to aircraft or equipment, jack handle must be removed from jack (1, figure 3, WP038 01) before lowering MLG.

- c. Remove jack handle from jack (1).
- d. Clear area under aircraft.

- e. Afloat, open jack (1) release valve and lower MLG slowly, tightening aircraft tiedowns as MLG is lowered.
  - f. Ashore, open jack (1) release valve and lower MLG slowly.
  - g. When pressure is off jack (1), turn in jack screw extension.
  - h. Remove jack (1).
  - i. Position chocks against MLG wheel.
- j. Remove landing gear aircraft ground safety pin from nosewheel steering power unit (A1-F18AC-PCM-000).
  - k. Afloat, adjust aircraft tiedowns.

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#### 10. NLG JACKING.

## **Support Equipment Required**

Type Designation	Nomenclature
1128AS100	20 Ton Hydraulic Hand Jack
74D110006-1001	Landing Gear Aircraft Ground Safety Pin

## **Materials Required**

None

## 11. JACKING.



To prevent death or injury to personnel or damage to equipment, install the landing gear aircraft ground safety pin into nosewheel steering power unit. This safety pin is used to lock the nosewheel steering power unit during jacking, preventing rotation of the nosewheels.

a. Install landing gear aircraft ground safety pin in nosewheel steering power unit (A1-F18AC-PCM-000).



To prevent damage to aircraft, minimum structural access doors must be installed.

- b. Make sure minimum structural access doors required for jacking at landing gear are installed, (table 2, figure 6, WP038 01).
- c. Door 1 (radome) must be closed and secured if installed. Radome may be opened after jacking (A1-F18AC-LMM-010).



To prevent damage to aircraft or equipment, be sure the other wheels are chocked before removing chocks from NLG wheels.

- d. Remove NLG chocks.
- e. Position jack under jack pad (figure 4, WP038 01).



To prevent aircraft from falling, do not turn out jack screw extension more than 3.25 inches.

- f. Turn out jack screw extension until firm against jack pad.
- g. Afloat, loosen aircraft tiedowns as NLG is jacked. Jack NLG to minimum required height.

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- h. Ashore, jack NLG to minimum required height.
- i. Afloat, adjust aircraft tiedowns.

## 12. LOWERING.



To prevent damage to aircraft, minimum structural access doors must be installed.

a. Make sure minimum structural access doors required for jacking at landing gear are installed, (table 2, figure 6, WP038 01).

# WARNING

Make sure landing gear safety pins and actuator ground safety devices are installed prior to lowering aircraft off jack stands.

- a1. Install landing gear safety pins and actuator ground safety devices (A1-F18AC-PCM-000).
- b. Door 1 (radome) must be closed and secured if installed (A1-F18AC-LMM-010).

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To prevent possible damage to aircraft or equipment, jack handle must be removed from jack before lowering NLG (figure 4, WP038 01).

- c. Remove jack handle from jack.
- d. Clear area under aircraft.
- e. Afloat, open jack release valve and lower NLG slowly, tightening aircraft tiedowns as NLG is lowered.
  - f. Ashore, open jack release valve and lower NLG slowly.

- g. When pressure is off jack, turn in jack screw extension.
- h. Remove jack.
- i. Position chocks against NLG wheels.
- j. Remove landing gear aircraft ground safety pin from nosewheel steering power unit (A1-F18AC-PCM-000).
  - k. Afloat, adjust aircraft tiedowns.

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## 13. JACKS-IN-PLACE SAFING.

#### NOTE

This procedure is used in support of any maintenance procedure requiring the LDG GEAR control handle to be UP with the landing gear remaining weight-on-wheels and aircraft ground safety pins installed.

## **Support Equipment Required**

Part Number or Type Designation	Nomenclature
270AS100	20 Ton Tripod Hydraulic Jack
782D1100	20 Ton (T20-3FH)
61A101D	Tripod Jack (2) Aircraft Tiedown (AR)

## **Materials Required**

None

14. SAFING.

#### NOTE

For cockpit switch locations, refer to A1-F18AC-GAI-000, WP004 00).

- a. Make sure LDG GEAR control handle is set to DN.
- b. Make sure landing gear aircraft ground safety pins are installed (A1-F18AC-PCM-000).
  - c. Open access doors 16, 107L and 107R (A1-F18AC-LMM-010).
- d. Position 782D1100 jack under each wing jack pad (figure 5, WP038  $\,$  01).
  - e. Position 270AS100 jack under forward fuselage jack pad.



To prevent damage to aircraft, make sure jack screw extensions are extended enough to prevent jack rams from contacting tie down rings.

To prevent damage to aircraft, do not turn out 270AS100 jack screw extension more than 6 inches and 782D1100 jack screw extension more than 15.5 inches.

- f. Turn out jack screw extensions until firm against jack pads.
- g. Afloat, tiedown jacks.

- h. Extend jacks until each foot is firmly on deck, do not raise aircraft.
  - i. Make sure jack ram locknuts are in locked position.

### 15. REMOVAL.

- a. Make sure LDG GEAR control handle is set to DN.
- b. Make sure landing gear is down and locked.
- c. Make sure landing gear aircraft ground safety pins are installed (A1-F18AC-PCM-000).



To prevent possible damage to aircraft or equipment, remove jack handle from jacks before releasing pressure on jacks.

- d. Make sure jack handles are removed from jacks.
- e. Clear area under aircraft.
- f. Loosen jack ram locknuts.
- g. Open each jack release valve and slowly release pressure on jacks.
- h. When pressure is off jacks and jacks are resting on casters, turn in jack screw extensions.
  - i. Afloat, remove tiedowns from jacks.
  - j. Remove jacks from under aircraft.
  - k. Close access doors 16, 107L and 107R (A1-F18AC-LMM-010).

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Table 1. Determination of Jacking Weight

Aircraft Weight No Pilot No Gun Ammo No AIM-7 or AIM-9 Full Internal Fuel Tanks	Weight In Pounds	Aircraft Weight  1 35,100
$\rm C_L$ 330 Gal Tank and Pylon Full $\rm C_L$ 330 Gal Tank and Pylon	436 2680	
One 330 Gal Centerline/ or Wing Tank	299	
330 Gal Wing Tank and Pylon Two full 330 Gal Wing Tanks and Pylons	609 5690	
M61A1 Gun Ammo 400 RDS/578 RDS Pylon (SUU-62/A) Wing Pylon (SUU-63/A or SUU-63A/A)	226/326 137 302	
Bomb Rack (VER-BRU-33/A) Launcher (LAU-7)	173 90	
Launcher (LAU-115/A, LAU-115A/A or LAU-115B/A)	62	
Launcher (LAU-115C/A) Launcher (LAU-117/A or LAU-117(V)2/A)	131 135	
Launcher (LAU-118(V)1/A) Bomb Rack (MER-7)	101 220	
Command Launch Computer CP1001/AWG (HARM CLC)	38	
Countermeasures Warning and Control System (ALR-67)	91	
Countermeasures Set ALQ-165 Countermeasures Set ALQ-126	315 195	

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Table 1. Determination of Jacking Weight (Continued)

Aircraft Weight No Pilot No Gun Ammo No AIM-7 or AIM-9 Full Internal Fuel Tanks	Weight In Pounds	Aircraft Weight  1 35,100
Bomb Rack (VER-BRU-33A/A)	173	
Bomb Rack CVER (BRU-33A/A)	193	
Launcher (LAU-115C/A)	131	
Launcher (LAU-127A/A)	96	
Bomb Rack (BRU-41/A)	288	
Bomb Rack (BRU-42/A)	112	
2 LST/Strike Camera and Adapter	163	
2 FLIR Pod and Camera	347	
With LTD/R	387	
2 NAVFLIR	211	

Aircraft Jacking Weight

To determine aircraft jacking weight, do steps below:

- a. Check components on table that are installed on aircraft.
- b. Add weight of all items checked to aircraft weight.
- c. Total jacking weight must not exceed 39,000 pounds.

#### NOTE

1 Refer to NAVAIR 01-1B-40 for latest aircraft weight.

Requires removal of Launcher (LAU-116/A or LAU-116A/A) and addition of Missile Well Cover.

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Page 1

#### **ORGANIZATIONAL MAINTENANCE**

### LINE MAINTENANCE PROCEDURES

### **IPB - JACKING**

## **Reference Material**

Line Maintenance Procedures	A1-F18AC-LMM-000
Jacking	WP038 00

## **Alphabetical Index**

Subject	Page No.
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Aircraft Jacking Without Centerline Stores, Figure 1	4

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Subject	Page No.
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Jacks-In-Place Safing, Figure 5	12
Minimum Structural Access Door Requirements,	
Figure 6	14
MLG Jacking, Figure 3	8
NLG Jacking, Figure 4	11

## **Record of Applicable Technical Directives**

None

## 1. INTRODUCTION.

2. Jacking procedures are in WP038 00. Index numbers in this WP match those in WP038 00.

038 01

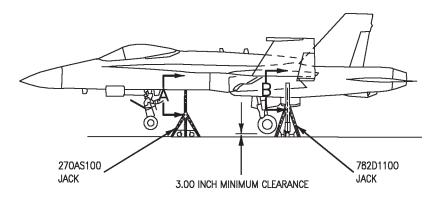
Page 3

## 3. ILLUSTRATED PARTS BREAKDOWN.

4. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

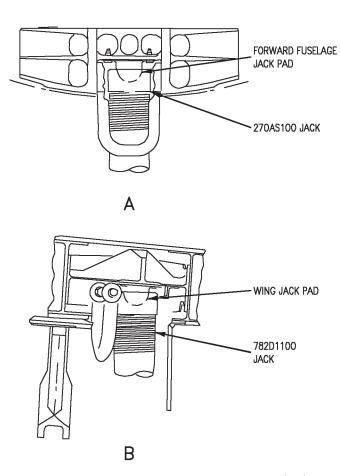
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18AC-LMM-00-(59-1)37-SCAN

Figure 1. Aircraft Jacking Without Centerline Stores (Sheet 1)



18AC-LMM-00-(59-2)37-SCAN

Figure 1. Aircraft Jacking Without Centerline Stores (Sheet 2)

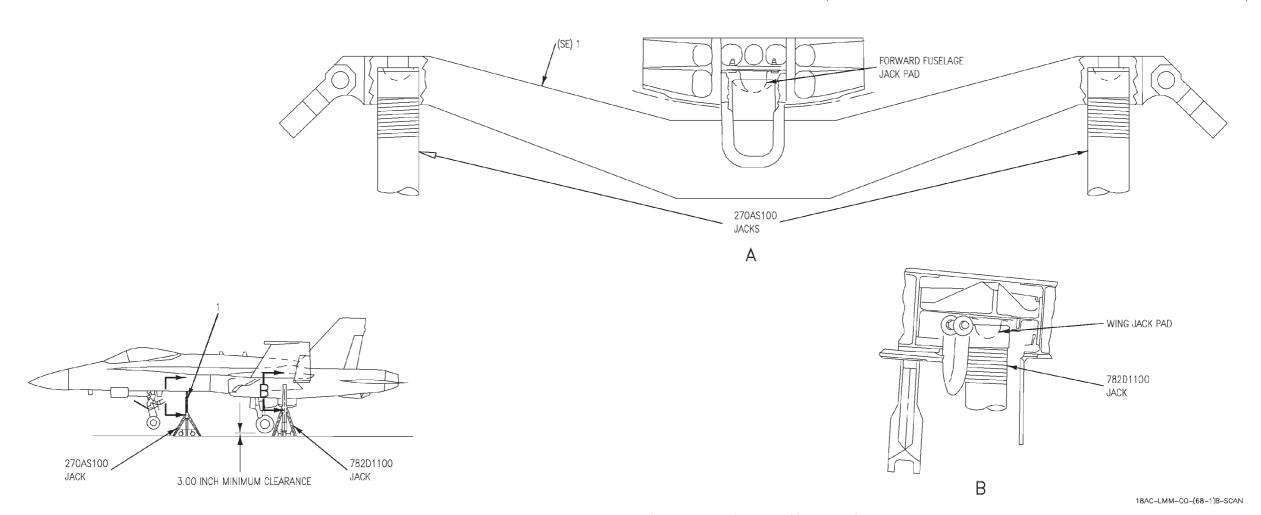


Figure 2. Aircraft Jacking With Centerline Stores (Sheet 1)

Figure 2.

74D110002-1001

038 01

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
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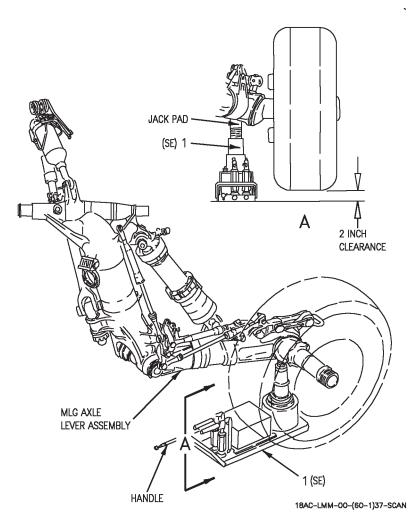
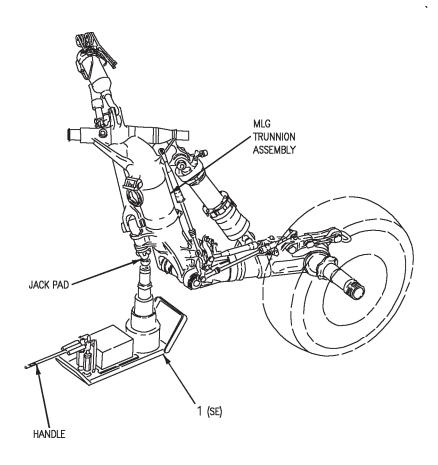


Figure 3. MLG Jacking (Sheet 1)



18AC-LMM-00-(60-2)37-SCAN

Figure 3. MLG Jacking (Sheet 2)

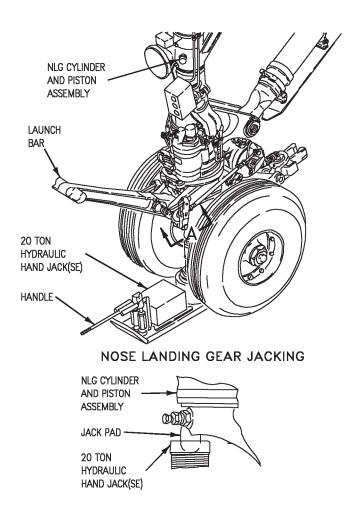
038 01

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
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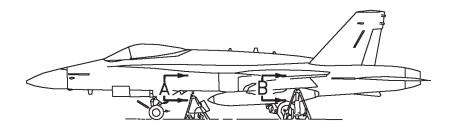
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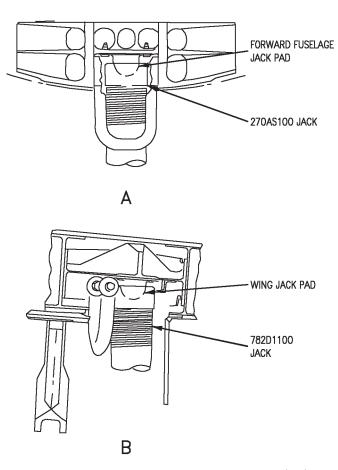
18AC-LMM-00-(61-1)37-SCAN

Figure 4. NLG Jacking



18AC-LMM-00-(86-1)37-CATI

Figure 5. Jacks-in-Place Safing (Sheet 1)



18AC-LMM-00-(86-2)A-SCAN

Figure 5. Jacks-in-Place Safing (Sheet 2)

3 (FORWARD

FUSELAGE)

038 01

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Table 1. Minimum Structural Access
Doors Required for Jacking at Wing and Forward Fuselage Jack Pads

DOOR NUMBER LOCATION	MINIMUM FASTENERS		
CAUTION			
All doors and fasteners must be installed before flight.			
When aircraft is tied down, minimum structural access doors may not be removed even after jacking is complete, for structure could be damaged. Ashore with calm weather and no aircraft tiedowns attached, all doors may be removed for maintenance while aircraft is on jacks after jacking is complete except that doors 79L/R and 143L/R may not be removed even after jacking is complete, for structure could be damaged.			
76L/R, 77L/R, 78L/R, 82L/R, 83L/R, 84L/R (WING)	Doors may be removed or installed. If installed, corner fasteners and every other fastener in between.		
79L/R, (WING)	Corner fasteners and every other fastener in between. These doors may not be removed at any time wing jacks are in place.		
35L/R (FORWARD FUSELAGE)	Corner fasteners and every other fastener in between.		
33 (FORWARD FUSELAGE)	ALL.		

# Figure 6. Minimal Structural Access Door Requirements (Sheet 1)

With gun and radar installed, install all fasteners.

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Table 2. Minimum Structural Access Doors Required for Jacking at Landing Gear

DOOR	NUMBER
AND L	OCATION

## MINIMUM FASTENERS REQUIRED



All doors and fasteners must be installed before flight.

When aircraft is tied down, minimum structural access doors may not be removed even after jacking is complete, for structure could be damaged.

#### NOTE

Ashore with calm weather and no aircraft tiedowns attached, all doors may be removed for maintenance while aircraft is on jacks after jacking is complete.

76L/R, 77L/R, 78L/R,
79L/R, 82L/R, 83L/R,
84L/R, 143L/R, 1
(WING)

Doors may be removed or installed. If installed, corner fasteners and every other fastener in between.

 $\begin{array}{c} 30L \; FORWARD \\ FUSELAGE \end{array}$ 

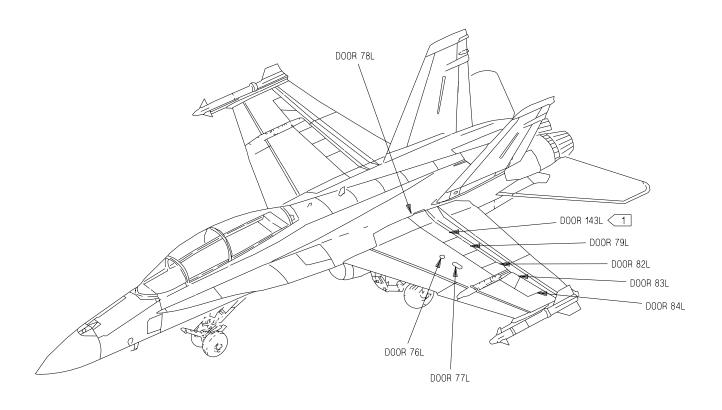
Corner fasteners and every other fastener in between.

3 (FORWARD FUSELAGE) With gun and radar installed, install all fasteners.

With gun and radar removed, door 3 not required. If door on aircraft, align and install two centerline fasteners only and lock the latches.

# Figure 6. Minimal Structural Access Door Requirements (Sheet 2)

Change 5

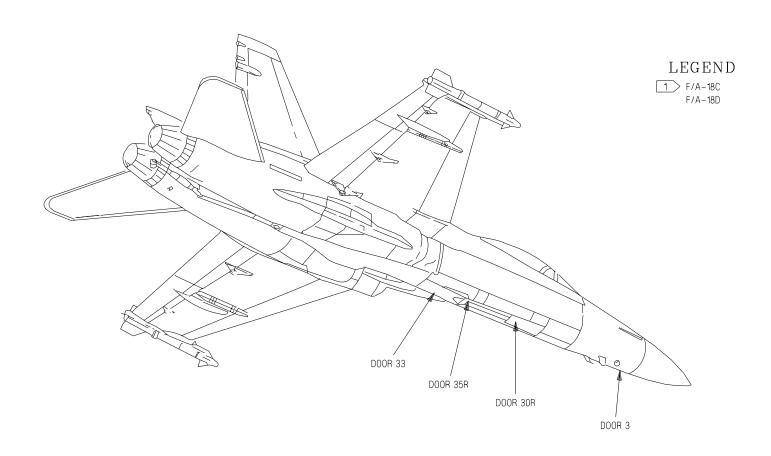


18AC-LMM-00\_85-1-37

Figure 6. Minimal Structural Access Door Requirements (Sheet 3)

Figure 6. Figure 6.

038 01
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18AC-LMM-00\_85-2-37

Figure 6. Minimal Structural Access Door Requirements (Sheet 4)

Figure 6.

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### HOISTING

This WP supersedes WP039 00, dated 15 July 2001.

### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
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## **Alphabetical Index**

Subject	Page No.
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Hoisting Precautions	2
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Sling Removal	6

## **Record of Applicable Technical Directives**

None

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Specification

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## **Support Equipment Required**

Part Number or Type Designation	Nomenclature	
74D110003-1001	Aircraft Maintenance Sling	
MB-1A	Airplane Crane Truck Ashore	
NS-60	Crane - Afloat	

#### **Materials Required**

or Part Number	Nomenclature	
MIL-C-16173 GR4	Corrosion Preventive	
(CAGE 80244)	Compound	

#### 1. HOISTING PRECAUTIONS.

- a. Aircraft may be hoisted weighing up to 40,600 pounds. Download external stores and internal fuel, as required, to stay within this limit.
  - b. Do not exceed center of gravity (cg) limits:
- (1) Maximum forward cg = empty F/A-18B AND F/A-18D with both engines removed.
- (2) Maximum aft cg = empty F/A-18A AND F/A-18C with radar antenna and transmitter removed.

## A1-F18AC-LMM-000

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#### Change 16

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- c. Do not exceed 45° tilt in any direction from level plane.
- d. Radome must be closed and secured, if installed (A1-F18AC-LMM-010).
- e. Crane must be operated smoothly, without jerks, to prevent aircraft damage.

#### 2. SLING INSTALLATION.



To prevent damage to aircraft, minimum structural access doors required for hoisting must be installed.

a. Be sure the below listed doors are installed (A1-F18AC-LMM-010):

Door Number and Location	Minimum Fasteners Required
3 (Forward fuselage)	Corner fasteners and every other fastener in between. Door 3 not required if both gun and radar are not installed.
25L/R, 30L/R, 33, 35L/R (Forward fuse- lage)	Corner fasteners and every third fastener in between.

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Door Number and Location	Minimum Fasteners Required
105 (Forward fuselage	Corner fasteners and every other fastener in between.
55L/R, 56L/R (Center fuselage)	All.
76L/R, 77L/R, 78L/R, 79L/R, 82L/R, 83L/R, 84L/R (Wing)	If installed, corner fasteners and every other fastener in between.
ON F/A-18C/D 143L/R (Wing)	If installed, corner fasteners and every other fastener in between.

- b. Remove doors 58L and R from forward hoist adapters (A1-F18AC-LMM-010).
- c. Remove doors 50L and R from aft hoist supports (A1-F18AC-LMM-010).
- d. Inspect hoist adapters and supports for cracks, distortion, stripped threads or other damage.
  - e. Attach sling to crane hook.
- f. Be careful to position crane hook above aircraft centerline, slightly forward of midway between forward and aft hoist points.
- g. Lower sling to allow attachment to forward adapters and aft supports with no tension on sling.

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- h. Attach forward sling fittings to forward hoist adapters. Tighten fittings.
  - i. Attach aft sling fittings to aft hoist supports. Tighten fittings.
- j. Attach stabilizing lines to the nose and main landing gear tiedown rings.
  - k. Be sure parking brake is off.
  - l. Close canopy (WP016 00).
  - m. Stow boarding ladder (WP016 00).

#### 3. HOISTING.



To prevent damage to aircraft or equipment make sure the line of action of lifting crane is vertical from center of sling.

To prevent damage to aircraft and/or equipment, make sure horizontal stabilator support is installed before hoisting aircraft.

- a. Install horizontal stabilator support (A1-F18AC-PCM-000).
- b. Take up slack in sling.
- c. With personnel tending stabilizing lines, hoist and lower aircraft as required.

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#### 4. SLING REMOVAL.



To prevent damage to aircraft, do not allow sling to contact aircraft when tension is relaxed.

- a. Relax tension from sling.
- b. Remove forward sling fittings from forward hoist adapters.
- c. Remove aft sling fittings from aft hoist supports.
- d. Remove stabilizing lines from nose and main landing gear tiedown rings.
- e. Inspect aircraft hoist adapters and supports for cracks, distortion, stripped threads or other damage.

## WARNING

Corrosion preventive compound is flammable and toxic to eyes, skin and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

- f. Apply corrosion preventive compound to threads in aircraft hoist adapters and supports.
  - g. Install doors 50L/R and 58L/R (A1-F18AC-LMM-010).

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### TOWING/SPOTTING/PARKING

#### **Reference Material**

Line Maintenance Access Doors	A1-F18AC-LMM-010
Plane Captain Manual	A1-F18AC-PCM-000
Landing Gear and Related Systems	A1-F18AC-130-310

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## **Record of Applicable Technical Directives**

None

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## **Support Equipment Required**

Part Number or Type Designation	Nomenclature		
1479AS200-1	Aircraft Towbar -		
1450 4 0000 1	Afloat (15 ALBAR)		
1479AS300-1	Aircraft Towbar - Ashore (20 ALBAR)		
TA75B	Ashore (20 ALBAR)  Aircraft Towing Tractor  Ashore		
TD80	Aircraft Towing Tractor, MD-3A - Afloat		
1182AS100-1	Aircraft Towing Tractor, A/S 32A-31 - Afloat		
1117AS100-1	Aircraft Spotting Dolly, SD-1D - Afloat		
-	Wands - Night Towing		
-	Whistle		
-	Cable or Chains -		
	<b>Emergency Towing</b>		
62A123D1-1	Wheel Chocks		

# **Materials Required**

None

#### 1. TOWING PRECAUTIONS.

# WARNING

Towing aircraft after a planing link failure may result in catastrophic tire failure. If towing without a dolly must be done, all personnel must remain clear of tire danger areas.

- a. The aircraft may be towed in all configurations and weights up to 49,837 pounds on a 3 % grade.
  - b. Towing speed shall not exceed 5 mph.
- c. During cold weather towing avoid excessive power and sudden movement of tow vehicle. High breakaway loads caused by snow, ice, or frozen tires may result in damage to landing gear or related components.
- d. If brakes on tow vehicle fail, apply steady pressure on top of rudder pedals until aircraft is stopped.
- e. When moving aircraft near other aircraft, vehicles or obstructions, safety personnel must be positioned to verify enough clearance. During towing, safety personnel must be equipped with whistles and, at night, luminous wands.

## WARNING

To prevent personnel injury or aircraft damage, do not tow aircraft when nose landing gear X dimension is more than 11 inches. When towing aircraft with landing gear X dimension between 8 and 11 inches, start forward slowly and stop gently when backing to prevent rocking aircraft off nose wheels.

- f. The restrictions below must be complied with to prevent rocking the aircraft off the nose wheels:
- (1) Do not tow aircraft if nose landing gear X dimension (figure 1) is more than 11 inches.
- (2) With nose landing gear X dimension between 8 and 11 inches:
  - (a) Start forward slowly and stop gently when backing.
- (b) If backing the aircraft up an incline is required, tow backwards with towbar attached to main landing gear.
- $\ensuremath{\left(c\right)}$  Do not push aircraft forward with towbar attached to main landing gear.

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- (3) If nose landing gear X dimension is more than 11 inches, install equipment, add fuel or remove one engine to get X dimension to 11 inches or less.
- g. Do not move aircraft with brake assembly removed, damage to landing gear may result.
- h. Make sure NLG and MLG safety pins are installed (A1-F18AC-PIM-000).

#### 2. TOWING PREPARATION.



To prevent damage to aircraft, minimum structural access door must be installed before towing.

a. Be sure the below listed door configuration is observed (A1-F18AC-LMM-010):

Table 1. Minimum Structural Access Doors Required Before Towing

Door Number and Location	Minimum Fasteners Required
3 (Forward fuse- lage)	Corner fasteners and every other fastener in between. Door 3 not required if both gun and radar are not installed.

Table 1. Minimum Structural Access Doors Required Before Towing (Continued)

Door Number and Location	Minimum Fasteners Required
25L/R (Forward fuselage)	Door may be removed or installed. If installed, corner fasteners and every other fastener in between.
30L/R, 33, 35L/R (Forward fuse- lage)	Corner fasteners and every other fastener in between.
76L/R, 77L/R, 78L/R, 79L/R, 82L/R, 83L/R, 84L/R (Wing)	Doors may be removed or installed. If installed, corner fasteners and every other fastener in between.
On F/A-18C/D 143L/R (Wing)	Door may be removed or installed. If installed, corner fasteners and every other fastener in between.



To prevent damage to aircraft, radome must be closed and secured if installed.

b. If installed, make sure radome is closed and secured (A1-F18AC-LMM-010).

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To prevent damage to nose gear strut, nosewheel steering ground safety pin must be removed if installed.

c. Make sure nosewheel steering ground safety pin is removed (A1-F18AC-PCM-000).



Brake failure during towing could result in damage to aircraft or equipment. Make sure EMER BRAKE accumulator manifold pressure gage indicates 2900 psi minimum before starting to tow.

d. Make sure EMER BRAKE accumulator manifold pressure gage, located on the forward bulkhead of the nose wheelwell, indicates 2900 psi minimum before starting to tow. If below 2900 psi, service the EMER BRAKE accumulator (WP033 00).



To prevent damage to engine bay doors, do not tow aircraft with doors 68 L/R open.

- e. Make sure doors 68 L/R are closed or removed (A1-F18AC-LMM-010).
- f. Make sure all support equipment is removed from aircraft and all obstacles are clear of towing area.

#### 3. TOWBAR INSTALLATION ON NOSE LANDING GEAR.



To prevent damage to NLG tires, bolts at aft end of towbar tubes must be installed with heads inboard.

- a. Be sure bolts at aft end of towbar tubes are installed with heads inboard.
  - b. Spread towbar tubes apart and install tow pins (figure 2).
- c. Install detent pins in towbar tubes and through the tow pins, locking tow pins in position.

- d. Pull towbar tubes together to fit tow pins into nose gear axle ends.
- e. Slide towbar chain through towbar sleeve and pull tight, then engage nearest link in slot on tube.



To prevent towbar loosening, make sure knob has not arrived at the end of its travel and chain is under maximum tension.

- f. Tighten chain to maximum tension with knob.
- g. Store fid in grommeted hole so chain will not drag.
- h. Connect tow tractor to towbar.

#### 4. TOWBAR INSTALLATION ON MAIN LANDING GEAR.



To prevent damage to aircraft tires, tow pins must be in normal tow position.

a. Make sure tow pins are in the normal tow position (figure 2).

- b. Spread towbar tubes apart and attach to tiedown fittings at both main landing gear axles.
  - c. Connect tractor to towbar.

#### 5. SPOTTING DOLLY.

- a. The SD-1D spotting dolly (figure 3) is used for shipboard aircraft spotting. The spotting dolly attaches to the nose landing gear which is designed to swivel  $360^{\circ}$ . With external stores installed the spotting dolly can rotate the nose gear through a  $243^{\circ}$  arc.
- b. Connect spotting dolly to nose landing gear. Do not lift nose wheels until tiedowns are removed from aircraft.

#### 6. TOWING.



To prevent damage to boarding ladder, be sure ladder is stowed before moving aircraft.

- a. Be sure boarding ladder is stowed (WP016 00).
- b. If set, release parking brake by rotating EMERG BRK/PARK BRK control  $45\,^\circ$  CCW, push in then turn CW.

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# WARNING

To prevent injury to personnel or damage to aircraft, EMERG BRK/PARK BRK control must be pulled out to EMERG BRK position to pressurize brake system for towing.

#### NOTE

For locations of cockpit controls and indicators, refer to WP044 00.

- c. Pull EMERG BRK/PARK BRK control to EMERG BRK position.
- d. If tow vehicle or tow bar fails, apply steady pressure to top of rudder pedals until aircraft is stopped. Maintain pressure on rudder pedals until wheel chocks and, if afloat tiedowns are installed.
  - e. Remove wheel chocks, static ground, and tiedowns.

# WARNING

To prevent personnel injury, do not try to board or exit a moving tow vehicle or aircraft.

#### NOTE

The nose landing gear can swivel through 360° to aid ground/deck handling (figure 4).

- f. Tow slowly and smoothly.
- g. Monitor Hydraulic Brake Pressure Indicator. If needle enters red area, stop towing and do APU accumulator hydraulic charging (A1-F18AC-PCM-000, WP015 00).
- h. Before completion of towing, stop aircraft and inspect tires for cuts and embedded objects. Tow forward as required to allow complete inspection of tires.
- i. Install wheel chocks, static ground wire and, aboard ship, tiedowns.
- j. When in final spot, push EMERG BRK/PARK BRK control in, rotate  $90\,^\circ$  CCW and pull to set parking brake.
  - k. Disconnect towbar from aircraft.

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#### 7. EMERGENCY TOWING.

#### 8. WITHOUT TOWBAR.

- a. For forward towing, attach cables or chains to upper, forward tiedown fittings on both main landing gear struts.
- b. For rearward towing, attach cables or chains to tiedown fittings at both main landing gear axles.
  - c. Attach cables or chains to tow tractor.



To prevent damage to boarding ladder, be sure ladder is stowed before moving aircraft.

d. Be sure boarding ladder is stowed (WP016 00).

#### 9. ON SOFT GROUND.



To prevent damage to nose landing gear, supplement towbar with cables or chains attached to main landing gear struts.

- a. For forward towing, supplement towbar with cables or chains attached to upper, forward tiedown fittings on both main landing gear struts. Be sure cables or chains are providing equal force with towbar.
- b. For rearward towing, towbar, cables or chains may be used, attached to tiedown fittings at both main landing gear axles. Be sure nose wheels do not bog down or dig in.



To prevent damage to boarding ladder, be sure ladder is stowed before moving aircraft.

c. Be sure boarding ladder is stowed (WP016 00).

#### 10. PARKING.

a. Aircraft and parking space dimensions are shown in figure 5. Typical exhaust temperature and velocity patterns are also shown to visualize jet wake for engine operation at idle and 80 % NH(N2) rpm. This information may be used for planning the most efficient use of assigned parking area.

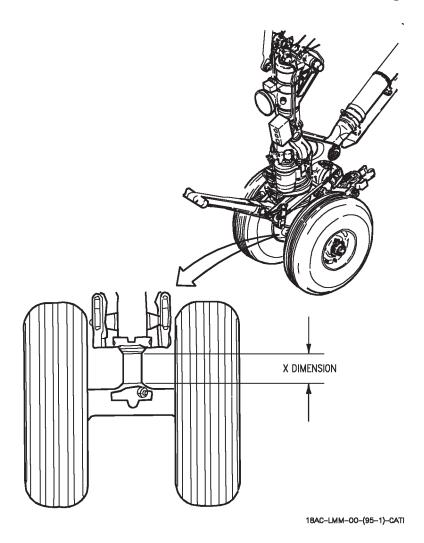
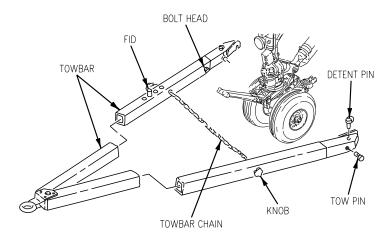
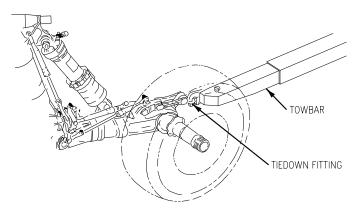


Figure 1. Nose Landing Gear X Dimension



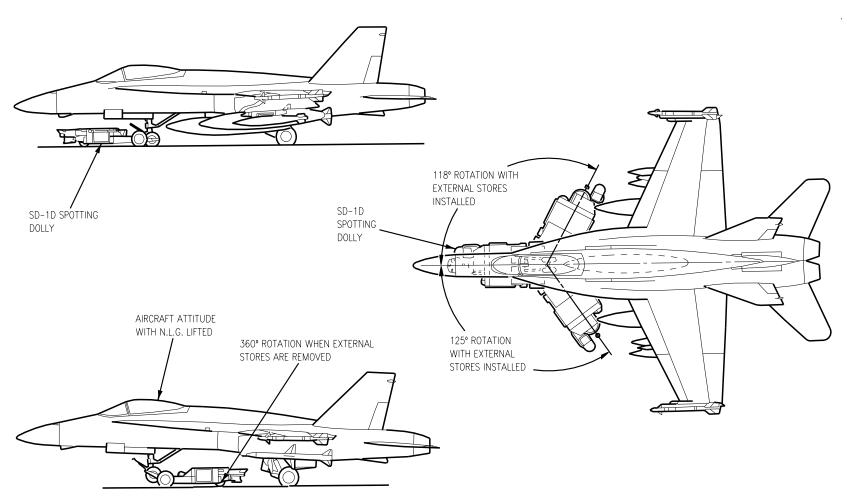
#### NOSE LANDING GEAR TOWBAR INSTALLATION



MAIN LANDING GEAR TOWBAR INSTALLATION

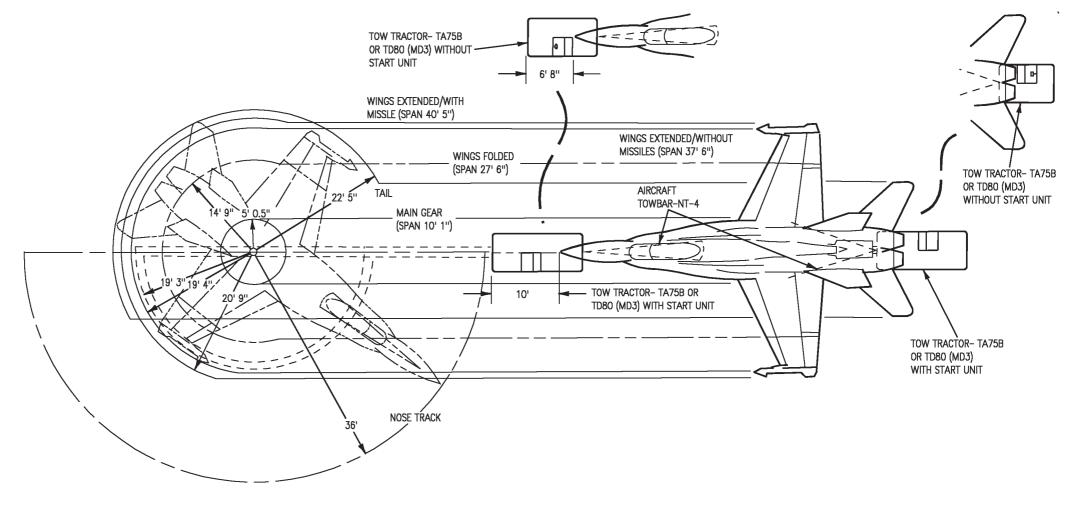
18AC-LMM-00-(25-1)56-SCAN

Figure 2. Towbar Installation



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Figure 3. Spotting Dolly



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Figure 4. Towing

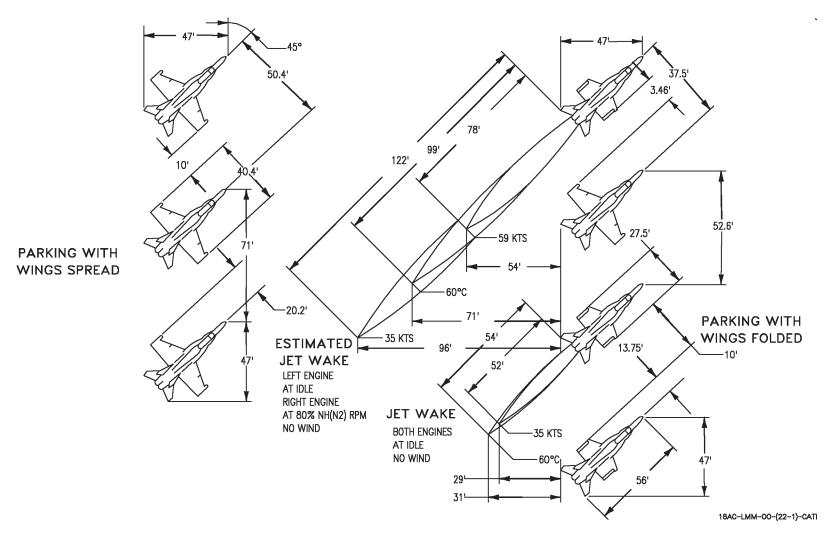


Figure 5. Parking

Figure 5. Figure 5.

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **EXTERIOR DRAINS, VENTS AND OPENINGS**

#### **Reference Material**

None

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Moisture Drains, Figure 3	6
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## **Record of Applicable Technical Directives**

None

### **Support Equipment Required**

None

### **Materials Required**

None

#### 1. EXTERIOR DRAINS, VENTS AND OPENINGS.

- 2. The location and identification of fuel system drains and vents are shown in figure 1. For description and operation of manual drains, refer to applicable system maintenance manuals.
- 3. The location and identification of drains and vents, other than fuel system are shown in figure 2.
- 4. The location of moisture drains are shown in figure 3. Not all drains are on all aircraft.
- 5. Exterior openings not covered in figures 1, 2 and 3 are shown in figure 4.

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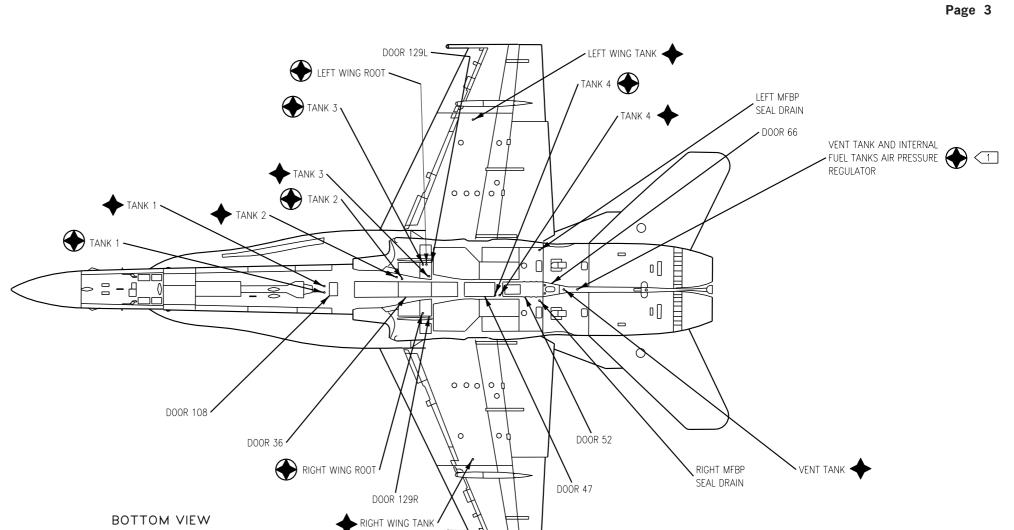


Figure 1. Fuel System Drains and Vents (Sheet 1)

Figure 1.

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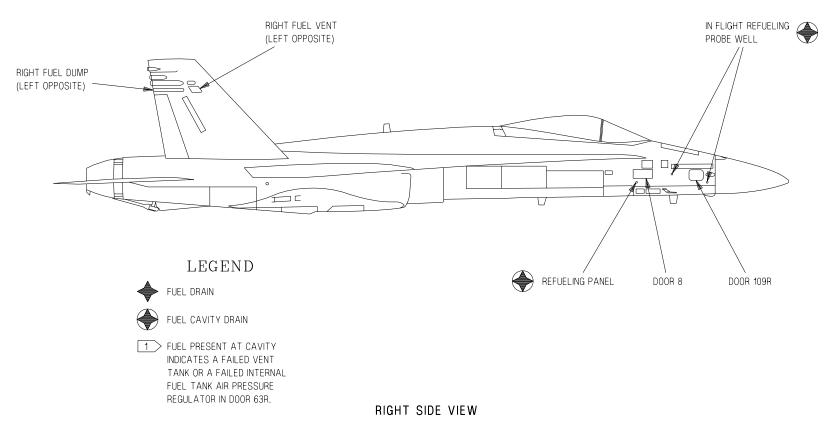


Figure 1. Fuel System Drains and Vents (Sheet 2)

Figure 1. Figure 1.

18AC-LMM-00\_43-2-59

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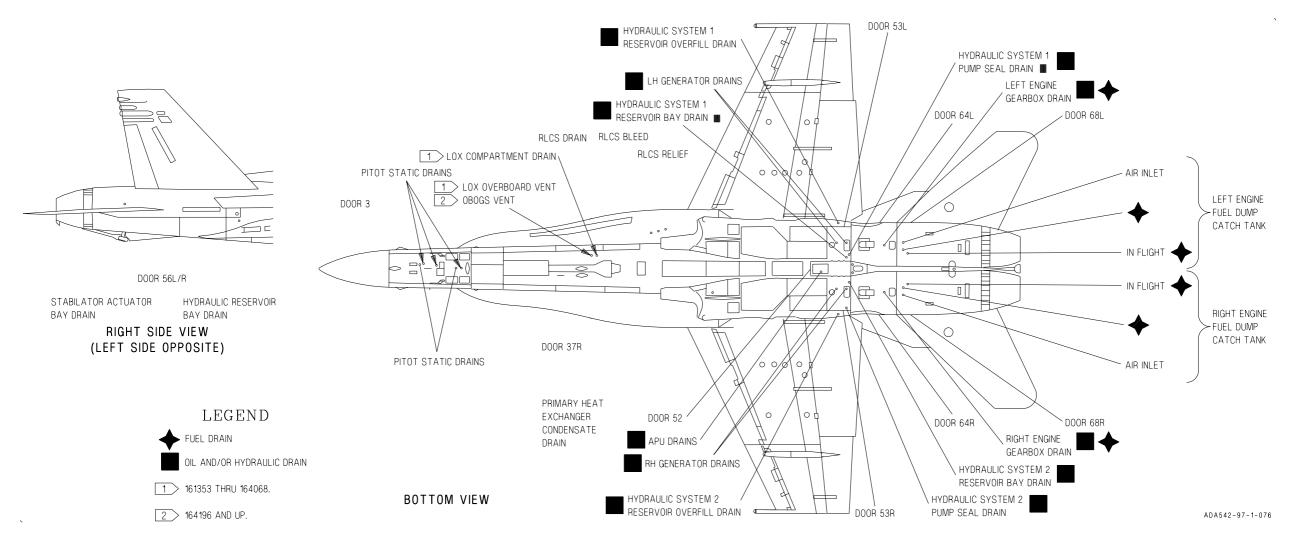


Figure 2. Miscellaneous Drains and Vents

Figure 2. Figure 2.

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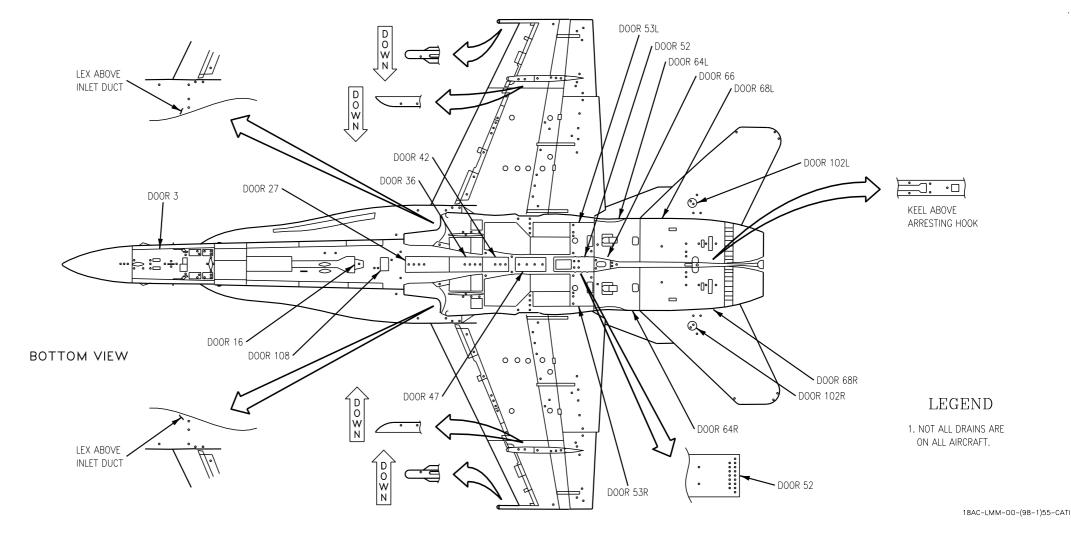
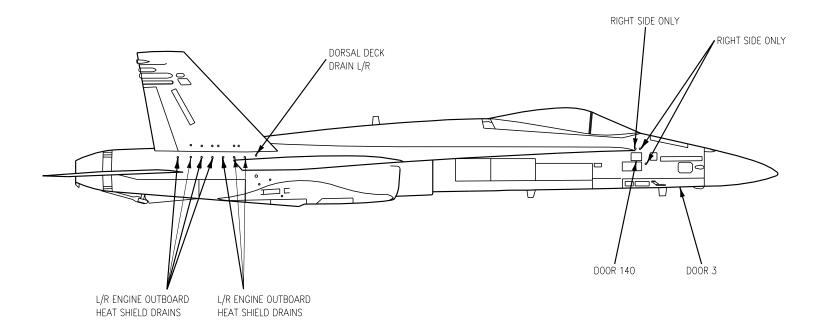


Figure 3. Moisture Drains (Sheet 1)

Figure 3.



RIGHT SIDE VIEW (LEFT SIDE OPPOSITE)

Figure 3. Moisture Drains (Sheet 2)

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Figure 3. Figure 3.

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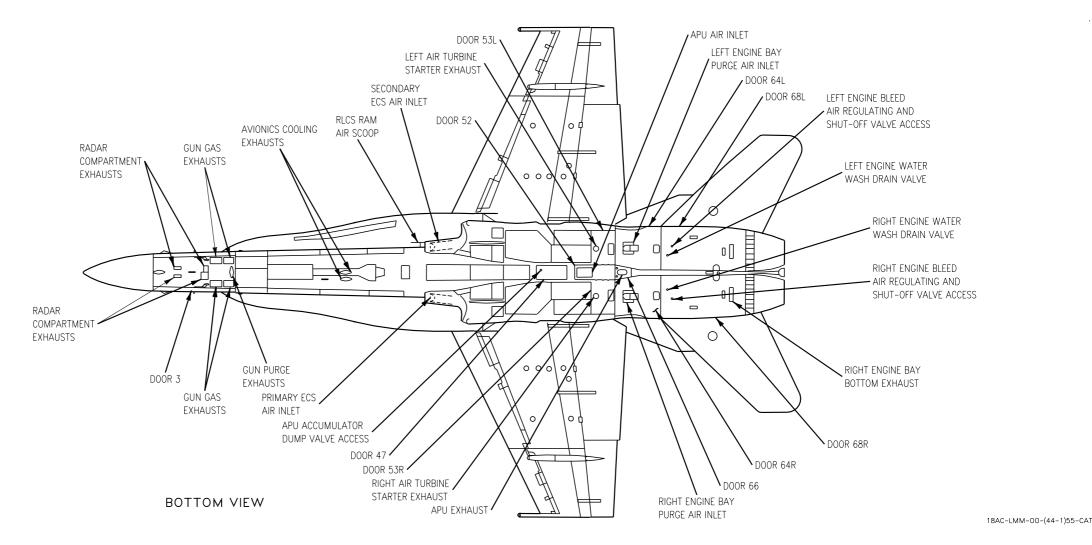
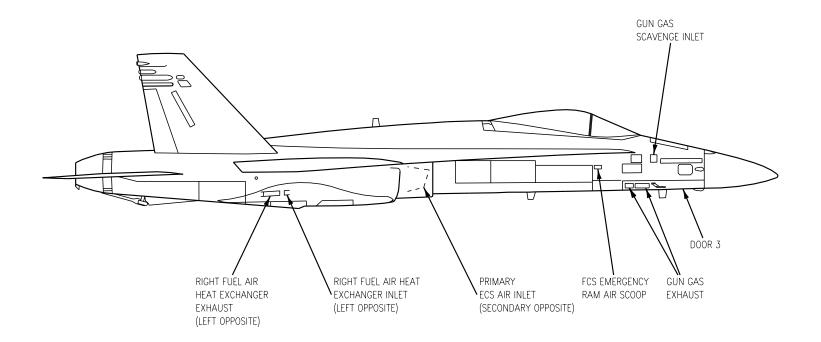


Figure 4. Exterior Openings (Sheet 1)

Figure 4. Figure 4.

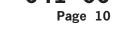


RIGHT SIDE VIEW

Figure 4. Exterior Openings (Sheet 2)

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Figure 4. Figure 4.



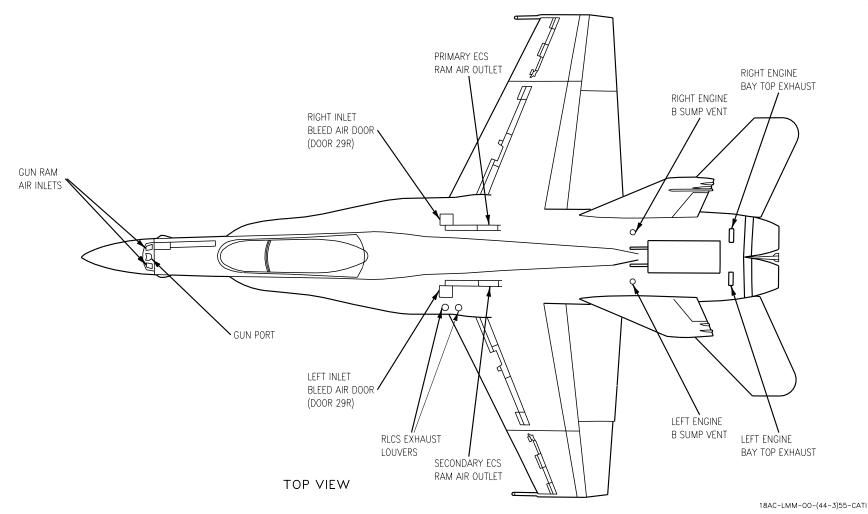


Figure 4. Exterior Openings (Sheet 3)

Figure 4. Figure 4.

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### ALLOWABLE LEAKAGE LIMITS

#### Reference Material

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Secondary Power System Leak Limits, Table 1	6
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### **Record of Applicable Technical Directives**

None

### **Support Equipment Required**

None

### **Materials Required**

None

#### 1. LEAK LIMITS.

- a. See tables 1 through 6 for leak limits.
- b. Limits given are with system operating except as stated.
- c. For conversion of drops to cc see below:
  - 21 drops of fuel, MIL-T-5624, equals one cc
  - 18 drops of oil, MIL-L-23699, equals one cc

#### 2. FUEL SYSTEM DEFINITIONS.

- a. There is no allowable leakage from the fuel system other than listed in table 3.
  - b. Internal wing and vertical stabilizer vent tank areas.
- (1) External Area An area exposed to air flow while flying, for example , upper and lower wing, inboard and outboard vertical stabilizer and exposed fuselage surfaces. Areas exposed only when flaps, ailerons and gear are extended are not considered external.
- (2) Internal Vented Area An area which is ventilated while flying or on the ground. This includes front and rear spars; and dry bay areas which are drained and ventilated to the atmosphere. No ignition sources exist.
- (3) Internal Non-Vented Area An area adjacent to a fuel or vent tank or an area containing fuel lines which has air circulation even though it may be drained. No ignition sources exist.

- (4) Critical Area An area containing an ignition source, for example electrical wiring or equipment which may spark and from which fuel may leak into the fuselage so that the leak path cannot be determined.
- c. Internal wing and vertical stabilizer vent tank leak categories. Evaluations to be made 6 minutes after wiping area completely dry. Valid only for JP-5 fuel.

#### NOTE

Surface irregularities can localize fuel and result in dripping even though the leak is a seep or heavy seep. Judgment must be used in relating the speed with which fuel reappears and spreads after wiping to determine leak category. When in doubt, classify leak to next higher leak category.

- (1) Slow Seep Fuel does not immediately reappear after being wiped away. When it reappears, it may spread slightly, but will not wet an area over 1/4 inch in diameter.
- (2) Seep Fuel does not immediately reappear after being wiped away. When it reappears, it will spread slowly on the surrounding surface but will not wet an area over 3/4 inch in diameter.
- (3) Heavy Seep Fuel immediately reappears after being wiped away and spreads on the surrounding surface. It does not drip or run from the surface or spread over an area larger than 2 inches in diameter.

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- (4) Slow Leak Fuel escapes at a visible rate and spreads on the surrounding surface over an area up to 4 inches in diameter. It may run slightly on the surface and may drip up to 1 drop per minute.
- (5) Medium Leak Fuel escapes at an easily visible rate and spreads on the surrounding surface over an area up to 8 inches in diameter. It runs on the surface and may drip 1 to 4 drops per minute.
- (6) Heavy Leak Fuel escapes at a significant rate and flows in contact with the surrounding surface over an area greater than 8 inches in diameter. It runs on the surface and drips more than 4 drops per minute.

#### 3. HYDRAULIC SYSTEM LEAKS.

- a. Operate and cycle system for a minimum of 5 minutes before inspecting for leaks.
- b. After 5 minutes, cycle for the specified number of cycles. If the first drop appears before getting to the specified number of cycles, start counting cycles when that drop appears.
- c. For flight control servocylinders, record flight information, troubleshooting information and location of leakage on Table 7.

Table 1. Secondary Power System Leak Limits

Drain Location	Component	Fluid	Limit	Remedy
Door 52 Left	Hydraulic Start Motor	Oil/ Hyd	2cc per hour	Replace APU (A1-F18AC-240-300, WP003 00).
Center	Fuel Control	Oil	2cc per hour	Replace APU (A1-F18AC-240-300, WP003 00).
Right	Gearbox	Oil	2cc per hour	Replace APU (A1-F18AC-240-300, WP003 00).
Door 53/54 L or R Left	Motive Flow /Boost Pump	Fuel and/or Oil	10 drops per hour at shaft seal drain, non- operating or 60 drops per hour at shaft seal drain, operating	Replace Motive Flow/Boost Pump (A1-F18AC-460-300, WP138 00) or (A1-F18AE-460-300, WP168 00).

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Table 1. Secondary Power System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
		NC	TE	
	akage immedia ceed acceptable		· ·	shut down may
Center	Generator	Oil	2	Replace Generator (A1-F18AC-420-300, WP003 00).
Right	Hydraulic Pump	Hyd	100 drops per hour at shaft seal	Replace Hydraulic pump (A1-F18AC-450-300, WP003 00).
Aft	AMAD	Oil	1	Replace AMAD (A1-F18AC-240-300, WP020 00).
Forward	Combined leakage, AMAD and accessories	Oil		Replace AMAD (A1-F18AC-240-300, WP020 00).

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Table 1. Secondary Power System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Right MLG wheelwell	Hydraulic Hand Pump	Hyd	1 drop per 13 full stroke cycles	Replace hydraulic hand pump (A1-F18AC-240-300, WP008 00).

1 Leakage is acceptable if AMAD does not require servicing more often than 20 hours operating time

2 Leakage should be measured during generator operation.

Total leakage from both drains is not to exceed 4cc per hour.

Table 2. Engine Leak Limits

	Table 2.		Leak Li	
Drain Location	Component	Fluid	Limit	Remedy
Door 64 L or R Drain Port	Main Fuel Pump (MFP)			
	(a) Engine Operation	Fuel	2.0cc per min.	Replace MFP (A1-F18AC-270-300, WP010 00).
	(b) Static	Fuel	2.0cc per min.	Replace MFP (A1-F18AC-270-300, WP010 00).
		Oil	2.8cc per min.	Replace MFP accessory drive shaft seal (A1-F18AC-270-300, WP053 00).
	Main Fuel Control (MFC)	Fuel	None	Replace MFC (A1-F18AC-270-300, WP008 00).
	Afterburner Fuel Pump (ABP) and Afterburner Fuel Control (ABC)			

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Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	(a) Non-AB Operation	Fuel	3.0cc per min.	Cycle engine from MIL to MAX (afterburner) to MIL three times. If leak continues, Replace ABP and/or ABC (A1-F18AC-270-300, WP016 00/WP015 00).
			80cc each engine start	Replace ABP and/or ABC (A1-F18AC- 270-300, WP016 00/ WP015 00).
	(b) AB Operation	Fuel	3.5cc per min. steady state	Replace ABP and/or ABC (A1-F18AC- 270-300, WP016 00/ WP015 00).
			10cc for each AB initi- ation	Replace ABP and/or ABC (A1-F18AC- 270-300, WP016 00/ WP015 00).

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
			80cc for each AB shut off	Replace ABP and/or ABC (A1-F18AC-270-300, WP016 00 or WP015 00).
	(c) Static	Fuel	1.5cc per min.	Replace ABP (A1-F18AC-270-300, WP016 00).
	ABP Pad	Oil	2.8cc per min.	Inspect accessory gearbox and ABP mating flange for defects. Replace ABP mating flange packings (A1- F18AC-270-300, WP016 00).
	Fan Variable Geometry (FVG) Actuator	Fuel	1.0cc per min.	Replace FVG Actuator (A1-F18AC-270-300, WP017 00).

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	Compressor Variable Geometry (CVG) Actuator	Fuel	1.0cc per min.	Replace CVG Actuator (A1-F18AC-270-300, WP018 00).
	Power Take- Off Pad (PTO) Drive Pad	Oil	2.8cc per min.	Replace PTO engine gearbox cou- pling shaft seal (A1-F18AC-270-300, WP053 00).
	A Sump Drain Ground IDLE and above	Oil	2.8cc per min.	Replace Engine (A1-F18AC-270-300, WP003 00).
	B Sump Drain			
	(a) Below 80 % N <sub>2</sub> RPM	Oil	6.0cc per min.	Do sump leakage troubleshooting (A1-F18AC-270-200, WP012 00, Table 1).

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	(b) Above 80 % N <sub>2</sub> RPM	Oil	2.8cc per min.	Do sump leakage troubleshooting (A1-F18AC-270-200, WP012 00, Table 1).

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	C Sump Drain			
		Oil	Wetting and/or puddling is allowable if within oil consumption limit. Calculate oil consumption (A1-F18AC-PCM-000, WP013 00).	Do high oil consumption troubleshooting (A1-F18AC-270-200, WP011 00).

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Table 2. Engine Leak Limits (Continued)

Table 2. Engine Leak Entits (Continued)				
Drain Location	Component	Fluid	Limit	Remedy
		NOTE	i	
	oz per hr EOT ver power settings.	alue is a	verage lim	it for high and
	Oil Consumption:			
		Oil	24 oz per op- erating hr	Do high oil consumption troubleshooting (A1-F18AC-270-200, WP011 00).
	Combined leakage, MFP and PTS pad	Oil	2.8cc per min.	Isolate and replace leaking accessory drive shaft seal(s) (A1-F18AC-270-300, WP053 00).
	Total Combined Drain leakage, flight IDLE and above	Oil	2.8cc per min.	Isolate defective component (A1-F18AC-270-200, WP012 00, table 2).

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	Total Combined Drain leakage, when at ground IDLE for a minimum of 15 minutes	Oil	8.8cc per min.	Isolate defective components (A1-F18AC-270-200, WP012 00, table 2).
	All other points	Fuel	None	Isolate and replace defective component (A1-F18AC-270-200)
Door 68 L or R (Fuel Dump Catch Tank	Check and Drain (C and D) Valve			
	(a) Engine operation	Fuel	3 drops per min.	Replace C and D Valve (A1-F18AC-270-300, WP014 00).
	(b)Engine shutdown	Fuel	600cc	

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Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
VEN Actuator, Rod End	VEN Actuator(s) Rod End Seal (each)	Oil	6 drops per 10 min.	Replace VEN Actuator(s) (A1-F18AC-270-300, WP028 00).
	Total system if engine has not been operated for 36 hours or more	Oil	8.0 drops per min.	Replace VEN actuator(s) (A1-F18AC-270-300, WP028 00).
VEN Posi- tion Trans- mitter Rod End	VEN Position Transmitter Rod End Seal.	Oil	6 drops per 10 min.	Replace VEN Position Transmitter (WP 073 00).
	Total system - if engine has not been operated for 36 hrs. or more.	Oil	8.0 drops per min. or 16.4 cc per hr.	Replace VEN Position Transmitter (WP 073 00).

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Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Afterburner	A/B spray bars with engine shut down	Fuel	Less than 2.0 drops per minute.  2.0 drops or more per minute.	1. Motor engine above 32% a minimum of two minutes.  2. Condition is allowable if seepage is reduced to minor.  3.If seepage remains major, replace afterburner distributor valve(s) (A1-F18AC-270-300 WP021 00).

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Page 16C/(16D blank)

Table 2. Engine Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
External Fan duct flanges		Air		1. Air leakage from fan duct flanges and splitlines is allowable if no defects (cracks, distortion, missing, broken or loose parts) are found.  2. Engine is acceptable if defect(s) can be repaired by replacing broken or missing parts or tightening loose parts.  3. Replace engine (WP003 00) if defect(s) cannot be repaired by replacing or tightening parts.

Table 3. Fuel System Leak Limits

Drain Location	Component	Fluid	Limit	Remedy
The	ere is no allowaber than listed in  Motive Flow/ Boost Pump		ge from the	Replace Motive Flow/Boost Pump (A1-F18AC-460-300, WP138 00) or (A1-F18AE-460-300, WP168 00).
			drain, oper- ating	

Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
External Area	Internal Wing Tank	Fuel	Slow Seep to Slow Leak	Record. No repair required. Repair when practical. (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Me- dium Leak	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Heavy Leak	Record. Repair (A1-F18AC-SRM-210, WP026 00) or (A1-F18AE-SRM-610, WP049 00).

Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Internal Vented Area	Internal Wing Tank	Fuel	Slow Seep to Heavy Seep	Record. No repair required. Repair when practical (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Slow Leak	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Me- dium Leak to Heavy Leak	Record. Repair (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).

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Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Internal Non-vented Area	Internal Wing Tank	Fuel	Slow Seep	Record. Repair when practical (A1-F18AC-SRM-210, WP026 00) or (A1-F18AE-SRM-610, WP049 00).
			Seep to Heavy Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Slow Leak to Heavy Leak	Record. Repair (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).

Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Critical Area	Internal Wing Tank	Fuel	Slow Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).
			Heavy Seep to Heavy Leak	Record. Repair (A1- F18AC-SRM-210, WP026 00) or (A1- F18AE-SRM-610, WP049 00).

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Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
External Area	Vertical Stabilizer Vent Tank	Fuel	Slow Seep to Slow Leak	Record. No repair required. Repair when practical. (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Me- dium Leak	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Heavy Leak	Record. Repair (A1-F18AC-SRM-240, WP033 01) or (A1-F18AE-SRM-760, WP037 00).

Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Internal Vented Area	Vertical Stabilizer Vent Tank	Fuel	Slow Seep to Heavy Seep	Record. No repair required. Repair when practical. (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Slow Leak	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-240 WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Me- dium Leak to Heavy Leak	Record. Repair (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).

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Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Internal Non-vented Area	Vertical Stabilizer Vent Tank	Fuel	Slow Seep	Record. Repair when practical. (A1-F18AC-SRM-240, WP033 01) or (A1-F18AE-SRM-760, WP037 00).
			Seep to 1 Heavy Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Slow Leak to Heavy Leak	Record. Repair (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).

Table 3. Fuel System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Critical Area	Vertical Stabilizer Vent Tank	Fuel	Slow Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Seep	Record. Repair when aircraft is down for maintenance (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).
			Heavy Seep to Heavy Leak	Record. Repair (A1- F18AC-SRM-240, WP033 01) or (A1- F18AE-SRM-760, WP037 00).

Table 3. Fuel System Leak Limits (Continued)

Inflight Refueling Probe Actuating Cylinder	Hyd	3	Replace inflight refueling probe actuating cylinder (A1-F18AC-460-300, WP078 00) or (A1-F18AE-460-300, WP092 00).

2 places maximum

▶ 1 drop per hour - unpressurized

2 drops per hour - pressurized

1 drop per 25 cycles for each dynamic seal

No leakage for static seals

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Table 4. Landing Gear Leak Limits

Drain Location	Component	Fluid	Limit	Remedy
NLG Wheelwell	EMER BRAKE accumulator	Hyd	None	Replace EMER BRAKE accumulator (A1-F18AC-130-300, WP070 00).
	NLG Actuating Cylinder	Hyd	1	Replace NLG actuating cylinder (A1-F18AC-130-300, WP024 00).
	NLG Door and Uplock Mechanism Actuating Cylinder	Hyd	1	Replace NLG door and uplock mecha- nism actuating cylin- dar (A1-F18AC-130- 300, WP025 00).
	NLG Door Uplock Hook	Hyd	1	Replace NLG door uplock hook (A1-F18AC-130-300, WP027 00).
	NLG Cylinder and Piston Assembly (NLG strut)	Hyd	2	Replace NLG cylinder and piston assembly (A1-F18AC-130-300, WP019 00 or WP021 01).

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Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	NLG Cylinder and Piston Assembly (NLG strut) Hydraulic Manifold (2 seals)	Hyd	2 drops per hour per seal, static	Replace NLG cylinder and piston assembly (A1-F18AC-130-300, WP019 00 or WP021 01).
	Time Delay Shuttle Valve	Hyd	None	Replace time delay shuttle valve (A1-F18AC-130-300, WP033 00).
NLG Wheelwell, R Side	Brake Control Hydraulic Servovalve	Hyd	1	Replace brake control hydraulic servovalve (A1-F18AC-130-300, WP069 00).
	Park and EMERG Brk Arm Valve Assembly	Hyd		Replace park and emerg brk arm valve assembly (A1-F18AC-130-300, WP065 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	Nose Wheel Steering Shuttle Valve	Hyd	None	Replace nose wheel steering shuttle valve (A1-F18AC-570-300, WP065 00).
	Nose Wheel Steering So- lenoid Selector Valve	Hyd	None	Replace nose wheel steering solenoid selector valve (A1-F18AC-570-300, WP064 00).
	Emergency Landing Gear Manual Control Valve	Hyd	1	Replace emergency landing gear manual control valve (A1-F18AC-130-300, WP011 00).
NLG Wheelwell, R Side, Aft	Forward Hydraulic Shutoff Solenoid Valve	Hyd	None	Replace forward hydraulic shutoff solenoid valve (A1-F18AC-130-300, WP062 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Upper Part of NLG Drag Brace	NLG Drag Brace - on landing gear extension	Oil (Am- ber)	See Remedy	Leakage of amber colored oil, VV-L-800A is acceptable.
		Hyd Fluid (Red)	None	Replace Drag Brace (A1-F18AC-130- 300, WP023 00).
	NLG Drag Brace Swivel Joint	Hyd	1	Repair or replace NLG drag brace swivel joint (A1-F18AC-130-300, WP031 01 or WP031 00).
Top of NLG Trunnion Assembly	Nose Wheel Steering Swivel Joint	Hyd	1	Repair or replace nose wheel steering swivel joint (A1-F18AC-570-300, WP066 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	Launch Bar Swivel Joint	Hyd	1	Replace launch bar swivel joint (A1-F18AC-130-300, WP105 00).
NLG Strut	Nose Wheel Steering Power Unit	Hyd	1	Replace nose wheel steering power unit (A1-F18AC-570-300, WP063 00).
	Launch Bar Power Unit	Hyd	1	Replace launch bar power unit (A1-F18AC-130-300, WP099 00).
	NLG Launch Bar Unlock Actuator	Hyd	1	Replace NLG launch bar unlock actuator seal (A1-F18AC-130-300, WP021 00).
MLG Wheelwell	MLG Uplock Mechanism	Hyd	1	Replace MLG uplock mechanism (A1-F18AC-130-300, WP046 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	MLG Uplock Mechanism Sequence Valve	Hyd	1	Replace MLG uplock mechanism sequence valve (A1-F18AC-130-300, WP056 00).
	MLG Actuating Cylinder	Hyd	1	Replace MLG actuating cylinder (A1-F18AC-130-300, WP051 00).
	MLG Door Actuating Cylinder	Hyd	1	Replace MLG door actuating cylinder (A1-F18AC-130-300, WP054 00).
	MLG Door Actuating Cylinder Shuttle Valve	Hyd	None	Replace MLG door actuating cylinder shuttle valve (A1-F18AC-130-300, WP057 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
	MLG Door Uplock Hook	Hyd	1	Replace MLG door uplock hook (A1-F18AC-130-300, WP050 00).
	MLG Down- lock Actuat- ing Cylinder	Hyd	1	Replace MLG down- lock actuating cylin- der (A1-F18AC-130- 300, WP052 00).
	MLG Side Brace Swivel Joints	Hyd	1	Replace MLG side brace swivel joints (A1-F18AC-130-300, WP053 00).
R MLG Wheelwell, Outboard	MLG Control Valve	Hyd	None	Replace MLG control valve (A1-F18AC-130-300, WP055 00).
MLG	MLG Shock Absorber	Hyd	2	Replace MLG shock absorber (A1-F18AC-130-300, WP039 00).

Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
MLG	Wheel Brake Swivel Joint	Hyd	1	Replace Wheel Brake Swivel Joint (A1-F18AC-130-320, WP079 00).
MLG Wheel	Multiple Disk Brake	Hyd	1	Replace multiple disk brake (A1-F18AC-130-300, WP064 00).
Door 103	Arresting Hook Actuator	Hyd	1	Replace arresting hook actuator (A1-F18AC-130-300, WP092 00).
Door 129L	Skid Control System Valve	Hyd	None	Replace skid control system valve (A1-F18AC-130-300, WP068 00).
Under Speed Brake	Arresting Hook Selector Valve	Hyd	None	Replace arresting hook selector valve (A1-F18AC-130-300, WP095 00).

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Table 4. Landing Gear Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
2 droj 1 droj No le:	p per hour - unp ps per hour - pro p per 13 cycles f akage for static n wetting allowe ridence of run o	essurize or each seals d	d dynamic s	

Table 5. Hydraulic System Leak Limits

Drain Location	Component	Fluid	Limit	Remedy
Inside Door	Gun Gas Scavenge Door/ Actu- ating Cylin- der	Hyd	1	Replace gun gas scavenge door actuating cylinder (A1-F18AC-750-300, WP009 00)
Door 113	Leading Edge Flap Drive Unit and Servovalve	Hyd	at each motor shaft seal	Replace leading edge flap drive unit and servovalve (A1-F18AC-570-300, WP035 00).
Flap Spar Area, Inboard	Trailing Edge Flap Servocyl- inder	Hyd	at each external seal and at each vent	Replace trailing edge flap servocylinder (A1-F18AC-570-300, WP040 00).
Wing Fold Area, Aft	Wing Fold Swivel Joint	Hyd	3	Repair or replace wing fold swivel joint (A1-F18AC-570-300, WP059 00).

Table 5. Hydraulic System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
Aileron Housing, Lower Bulge	Aileron Servocylinder	Hyd	4	Replace aileron servocylinder (A1-F18AC-570-300, WP011 00).
R MLG Wheelwell, Outboard	Forward Priority Valve	Hyd	None	Replace forward priority valve (A1-F18AC-450-300, WP007 00).
Door 53L or R	Hydraulic Pump/ Manifold	Hyd	at pump shaft seal	Replace Hydraulic pump (A1-F18AC-450-300, WP003 00).
Inside Door 55L or R	Hydraulic Reservoir/ Manifold	Hyd	1 drop per minute	Replace reservoir (A1-F18AC-450-300, WP005 00).
Door 87R or 89L, Lower Aft Corner	Rudder Ser- vocylinder	Hyd	4	Replace rudder servocylinder (A1-F18AC-570-300, WP025 00).

Table 5. Hydraulic System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
L or R MLG Wheelwell	Hydraulic Filter Unit	Hyd	None	Replace hydraulic filter unit (A1-F18AC-450-300, WP006 00).
Drain Hole Below Stabilator	Stabilator Servocyl- inder	Hyd	at each external seal and at each vent	Replace stabilator servocylinder (A1-F18AC-570-300, WP022 00).
Speed Brake Well	Speed Brake Cylinder	Hyd	3	Replace speed brake cylinder (A1-F18AC-570-300, WP051 00).
1 1 drop per hour - unpressurized 2 drops per hour - pressurized 1 drop per 25 cycles for each dynamic seal No leakage for static seals. 2 30 drops per hour - unpressurized 30 drops per hour - pressurized 100 drops per hour operating normally for each dynamic seal No leakage for static seals.				

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Table 5. Hydraulic System Leak Limits (Continued)

Drain Location	Component	Fluid	Limit	Remedy
2 droj 1 droj No lea 4 1 droj 2 droj 1 droj	p per hour - unp ps per hour - pr p per 13 cycles f akage for static p per hour - unp ps per hour - pr p per 10 cycles f akage for static	essurize for each seals oressurize for each	d dynamic s zed d	

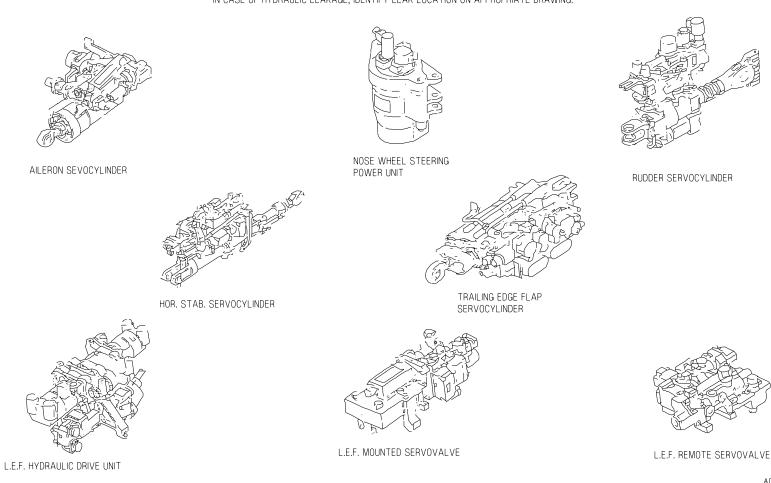
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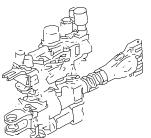
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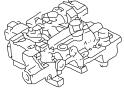
Table 6. Radar Liquid Cooling System Leak Limits

Drain Location	Component	Fluid	Limit	Remedy
Left Aft Lex RLCS DRAIN	Radar Liquid Cooling Centrifugal Pump Unit	Heat Trans- fer Fluid	7 drops per 8 hours	Replace radar liquid cooling centrifugal pump unit (A1-F18AC-410-300, WP119 00).
1 Cycle reservoir piston before inspection for leak				

IN CASE OF HYDRAULIC LEAKAGE, IDENTIFY LEAK LOCATION ON APPROPRIATE DRAWING.







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15 April 1996

## Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

### DATA ENTRY - ELECTRONIC EQUIPMENT CONTROL

#### **Reference Material**

None

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### Alphabetical Index (Continued)

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### **Record of Applicable Technical Directives**

None

#### 1. INTRODUCTION.

- 2. The purpose of this work package is to familiarize the maintenance person with entering data into the control-converter/digital data computer memory by way of the electronic equipment control. After replacing the control-converter/digital data computer, data must be entered into the memory of the replaced unit for maintenance and flight operations. The procedures in this WP are divided as listed below:
  - a. communication frequency
  - b. data link
  - c. instrument landing system (ILS)
  - d. tacan

- e. magnetic variation
- 3. **COMMUNICATION FREQUENCY.** See figure 1. Communication frequencies entered into the control-converter memory are established by local command units. The following procedure is an example of how frequencies are entered into the control-converter memory:
  - a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for three seconds (figure 1, detail A).

#### NOTE

Electronic equipment control switch actions must occur within 30 seconds of previous switch action or the electronic equipment control displays are blanked.

c. On the electronic equipment control, turn COMM 1 or COMM 2 VOL on and turn the COMM 1 or COMM 2 channel select knob to required channel. On F/A-18B 161354 THRU 161360 rear equipment control, be sure both VOL controls are on. Example: COMM 1 to channel 13 (figure 1, detail C).

- d. Pull and release the COMM 1 or COMM 2 channel select knob. The channel displayed in the COMM 1 or COMM 2 channel display window is also displayed in the left side of the scratch pad. Previous frequency in memory for selected channel is also displayed in right side of scratch pad.
- e. On 161520 AND UP, selection of AM or FM within the 225.000 through 399.975 MHz band is done by pressing the option select switch AM or FM for the corresponding modulation.
- f. Press equipment control keyboard to display required frequency. Example: 320.9 MHz.

Action	Scratch Pad Display
PRESS 3	.3
PRESS 2	3.2
PRESS 0	32.0
PRESS 9	320.9
PRESS ENT	

g. Scratch pad frequency display goes blank for 0.6 seconds if a valid frequency is entered, or "Error" appears in scratch pad and flashes if frequency entered is not valid.

- h. If frequency entry is not valid, enter valid frequency.
- i. Remove electrical power (WP004 00).
- j. On electronic equipment control, turn COMM 1 or COMM 2 VOL off.
- k. Refer to A1-F18AC-600-100, WP003 00 for valid frequency data and radio mode entry methods.
- 4. **DATA LINK.** See figure 1. Data link frequency information set in the control-converter memory is established by local command units. A procedure for frequency entries is as listed below:
  - a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for 3 seconds (figure 1, detail A).

#### NOTE

Electronic equipment control switch actions must occur within 30 seconds of previous switch action or the electronic equipment control displays are blanked.

- c. On electronic equipment control, press D/L function select switch. If data link is on, ON is displayed in left side of scratch pad. If data link is off, left side of scratch pad is blank. Data link does not need to be ON for frequency entry.
- d. Press top option select switch on equipment control for a colon display in OPER display window.
- e. Press equipment control keyboard to display required frequency. Example: 123.4 MHz.

Action	Scratch Pad Display
PRESS 1	.1
PRESS 2	1.2
PRESS 3	12.3
PRESS 4	123.4
PRESS ENT	

f. Scratch pad frequency display goes blank for 0.6 seconds if a valid frequency is entered, or "Error" appears in scratch pad and flashes if frequency entered is not valid.

- g. If frequency entry is not valid enter valid frequency.
- h. Remove electrical power (WP004 00).
- 5. **INSTRUMENT LANDING SYSTEM (ILS).** See figure 1. ILS channel entry is made in the control-converter memory as listed below:
  - a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for 3 seconds (figure 1, detail A).

#### **NOTE**

Electronic equipment control switch actions must occur within 30 seconds of previous switch action or the electronic equipment control displays are blanked.

- c. On the Intercommunication Amplifier Control AM-6979/A or AM-7360/A, set the ILS UFC/MAN switch to UFC (figure 1, detail B).
- d. On the electronic equipment control, press the ILS function select switch (figure 1, detail C). If the ILS is on, ON is displayed in the left side of the scratch pad. If the ILS is off the left side of the scratch pad is blank. The ILS does not need to be ON for channel entry.
- e. The existing ILS channel is displayed on the right side of the scratch pad.

- f. A colon and CHNL is displayed in the option 1 window.
- g. Press the equipment control keyboard to display the required channel. Example: Channel 14 (figure 1, detail E).

Action	Scratch Pad Display
PRESS 1	1
PRESS 4	14
PRESS ENT	

- h. Scratch pad channel display goes blank for 0.6 seconds if a valid channel is entered, or "Error" appears in scratch pad and flashes if channel entered is not valid.
- i. If channel entry is not valid, enter valid channel. Valid channel entries are 1 through 20.
  - j. Remove electrical power (WP004 00).
- 6. **TACAN.** See figure 1. Tacan channel entries are made in the control-converter memory as listed below:
  - a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for 3 seconds (figure 1, detail A).

#### NOTE

Electronic equipment control switch actions must occur within 30 seconds of previous switch action or the electronic equipment control displays are blanked.

- c. On the electronic equipment control, press the TCN function select switch (figure 1, detail C). If the tacan is on, ON is displayed in the left side of the scratch pad. If the tacan is off, the left side of the scratch pad is blank. The tacan does not need to be on for channel entry.
- d. The existing tacan channel is displayed on the right side of the scratch pad.
- e. Press the required channel mode option switch. Example: X channel mode
- f. Press equipment control keyboard to display the required channel. Example: Channel 101

Action	Scratch Pad Display
PRESS 1	1
PRESS 0	10
PRESS 1	101
PRESS ENT	

- g. Scratch pad channel display goes blank for 0.6 seconds if a valid channel is entered, or "Error" appears in scratch pad and flashes if channel entered is not valid.
- h. If channel entry is not valid, enter valid channel. Valid channel entries are 1 through 126.
  - i. Remove electrical power (WP004 00).
- 7. **MAGNETIC VARIATION**. See figure 1. Magnetic variation data is entered in the mission computer memory as listed below:
  - a. Apply electrical power (WP004 00).
- b. On GND PWR control panel assembly, set and hold 1 switch to A ON and 2 switch to B ON for 3 seconds (figure 1, detail A).

#### **NOTE**

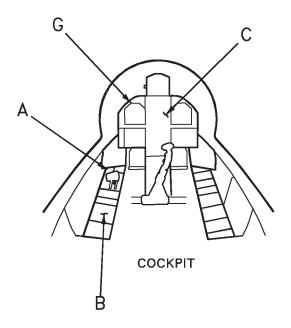
Electronic equipment control switch actions must occur within 30 seconds of previous switch action or the electronic equipment control displays are blanked.

- c. On left digital display indicator (LDDI), set power switch to DAY or NIGHT. Allow 2 minutes warmup and adjust BRT and CONT for best display (figure 1, detail G).
- d. On LDDI, press and release bottom center pushbutton switch labeled MENU until HSI pushbutton option is displayed. Top display in figure 1, detail G appears on LDDI.

- e. Press pushbutton switch labeled HSI. Upper middle display in figure 1, detail G appears on LDDI.
- f. Press pushbutton switch labeled DATA. Lower middle display in figure 1, detail G appears on LDDI.
- g. Press pushbutton switch labeled A/C. Bottom display in figure 1, detail G appears on LDDI.
- h. Press pushbutton switch labeled UFC. On the electronic equipment control A/C DATA options are displayed in option display windows. Press option select switch next to option MVAR (figure 1, detail H).
- i. The scratch pad displays magnetic variation previously stored in mission computer memory.
- j. Press equipment control keyboard to display the required magnetic variation. Example: E 18° 37' (figure 1, detail H).

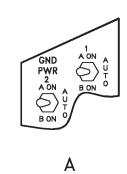
Action	Scratch	Pad Di	spla	y
PRESS E	$\overline{\mathrm{E}}$			_,
PRESS 1	$\mathbf{E}$		1	,
PRESS 8	${f E}$		18	,
PRESS 3	$\mathbf{E}$	1	83	,
PRESS 7	${f E}$	18	37	,
PRESS ENT				

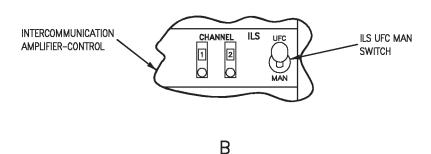
- k. Scratch pad channel display goes blank for 0.6 seconds if a valid magnetic variation is entered. "Error" appears in scratch pad and flashes if magnetic variation entered is not valid. Valid magnetic variations are E180° to W180° in degrees and minutes.
- l. If magnetic variation is not valid, press CLR and enter a valid magnetic variation.
  - m. On LDDI, set power switch to OFF.
  - n. Remove electrical power (WP004 00).



18AC-LMM-00-(70-1)39-CATI

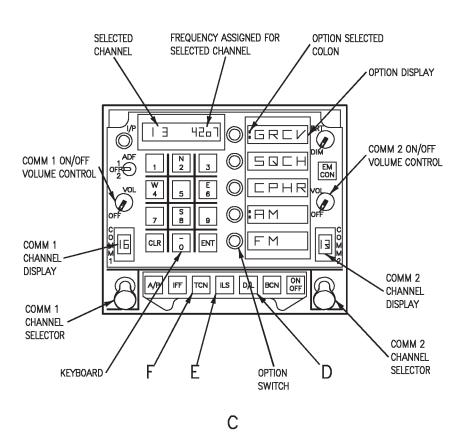
Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 1)





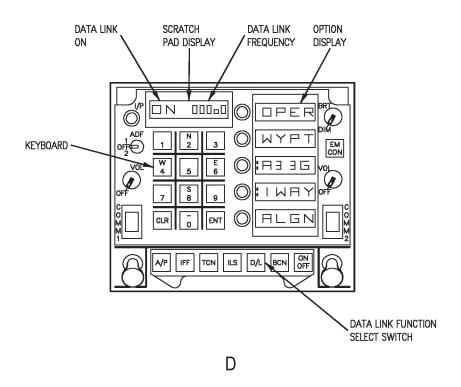
18AC-LMM-00-(70-2)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 2)



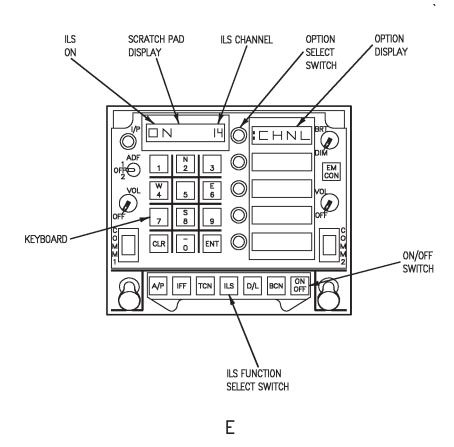
18AC-LMM-00-(70-3)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 3)



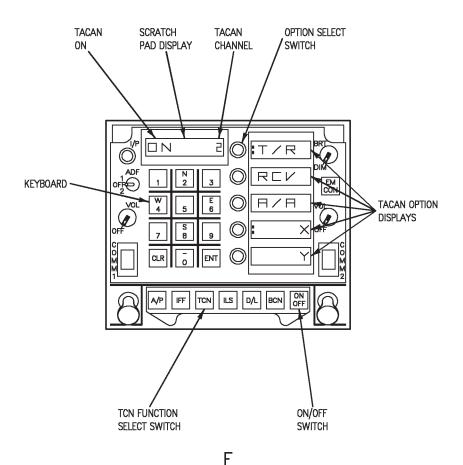
18AC-LMM-00-(70-4)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 4)



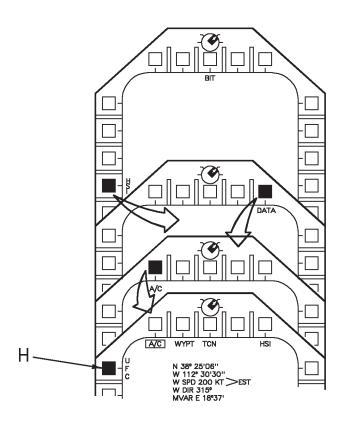
18AC-LMM-00-(70-5)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 5)



18AC-LMM-00-(70-6)39-CATI

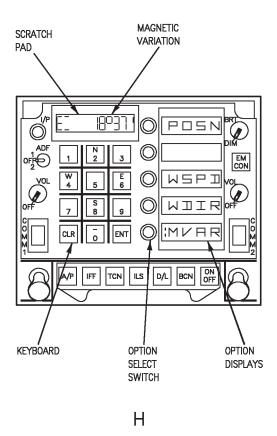
Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 6)



G

18AC-LMM-00-(70-7)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 7)



18AC-LMM-00-(70-8)39-CATI

Figure 1. Electronic Equipment Control Data Entry Displays (Sheet 8)

15 April 1996

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **COCKPIT INSTRUMENTS AND CONTROLS**

Title	WP Number
Cockpit Instruments and Controls - F/A-18A and F/A-18B	044 01
Cockpit Instruments and Controls - 163427 THRU 163782 F/A-18C and F/A-18D	044 02
Cockpit Instruments and Controls - 163985 AND UP	044 02
F/A-18C and F/A-18D	$044 \ 03$

15 April 1996

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **COCKPIT INSTRUMENTS AND CONTROLS**

EFFECTIVITY: F/A-18A AND F/A-18B

#### **Reference Material**

None

### **Alphabetical Index**

Subject	Page No.
Cockpit and Rear Cockpit Instruments and Controls	3
Cockpit Instruments and Controls, Figure 1	4
Materials Required	3
Rear Cockpit Instruments and Controls, Figure 2	15

# 044 01

Page 2

# **Alphabetical Index (Continued)**

	Page
Subject	No.
Support Equipment Required	3

### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 57	-	Improved Aircraft Monitor and Control (AMAC), Installa- tion of (ECP- MDA- F/A-18-00087)	15 Dec 86	-
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorpora- tion of (ECP-MDA- F/A-18-00121)	15 Dec 86	-
F/A-18 AFC 54	2 May 89	Incorporation of Video Recording System (ECP MDA- F/A-18-00027)	1 Dec 91	-

### **Support Equipment Required**

None

## **Materials Required**

None

# 1. COCKPIT AND REAR COCKPIT INSTRUMENTS AND CONTROLS.

2. Figure 1 shows the instruments and controls in the cockpit and a reference to the system maintenance manual which contains the removal and installation and repair (if applicable) of each item. Figure 2 shows the instruments and controls in the rear cockpit.

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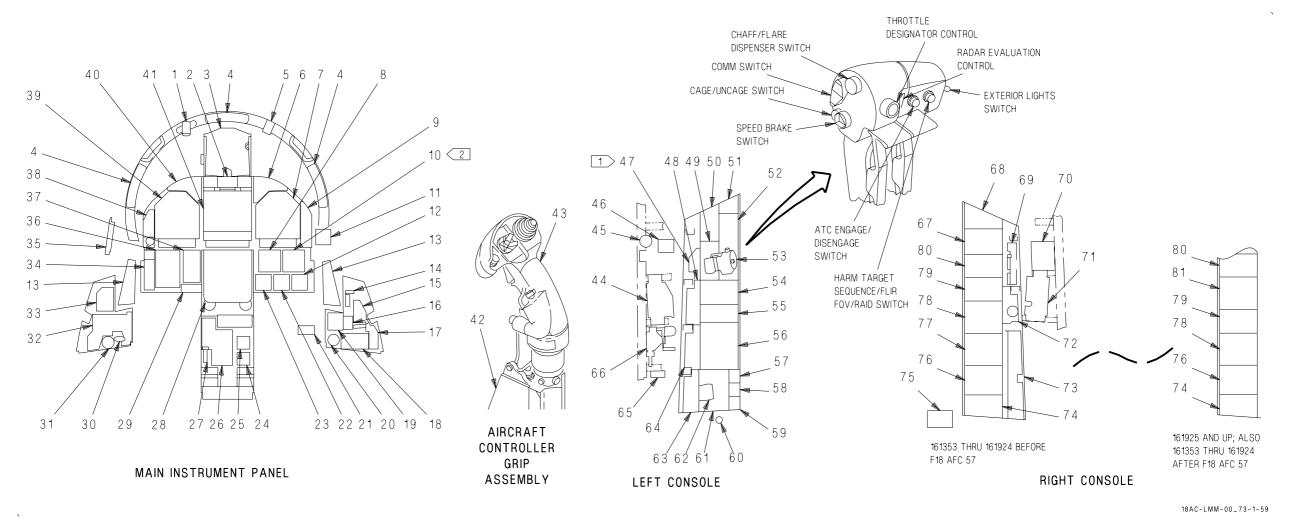


Figure 1. Cockpit Instruments and Controls (Sheet 1)

Figure 1. Figure 1.

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Chart Light	8DSH143	A1-F18AC-440-300 WP018 00
2	3 Head-Up Display Camera Blank Panel	-	A1-F18AC-745-300 WP016 00
	4 Head-up Display Camera MX-10403/AXQ	79A-J022	A1-F18AC-770-300 WP003 00
3	Head-Up Display Unit AN/AVQ-32 Combiner Assembly	79A-J001	A1-F18AC-745-300 WP003 00
4	Rearview Mirror	-	A1-F18AC-120-300 WP064 00 (F/A-18A) A1-F18AC-120-300 WP088 00 (F/A-18B)
5	Lock/Shoot Light Assembly	8DSJ150	A1-F18AC-740-300 WP015 00
6	RH Advisory and Threat Warning Indicator Panel	52A-J074	A1-F18AC-440-300 WP022 00
7	Right Digital Display Indicator IP-1317()	80A-J002	A1-F18AC-745-300 WP004 00

Figure 1. Cockpit Instruments and Controls (Sheet 2)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
8	Attitude Reference Indicator ARU-45A	33M-J015	A1-F18AC-730-300 WP012 00
9	Map Gain Control Panel Assembly	52A-J076	A1-F18AC-742-300 WP016 00
10	Porward Azimuth Indicator IP-1276/ ALR-67(V)	62A-J008	A1-F18AC-760-300 WP057 00
11	Standby Compass AQU-3/A	33M-J009	A1-F18AC-730-300 WP010 00
12	Vertical Speed Indicator AVU-29A	33M-J008	A1-F18AC-510-300 WP004 00
13	Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 03
14	Arresting HOOK Control Handle	19A-J003	A1-F18AC-130-300 WP088 00
15	Wing Fold Control Handle	17A-J008	A1-F18AC-570-300 WP056 00
16	Buno Light Panel	8DSH017	A1-F18AC-440-300 WP017 00

Figure 1. Cockpit Instruments and Controls (Sheet 3)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
17	FCS Cool Switch	22S-J095	A1-F18AC-410-300 WP081 00
18	Caution Light Indicator Panel	8A-J042	A1-F18AC-440-300 WP023 00
19	Height Indicator ID-2163/A	67A-J002	A1-F18AC-600-300 WP022 00
20	Hydraulic Pressure Indicator AGU-15/A	10M-J005	A1-F18AC-450-300 WP012 00
21	Static Source Select Valve	28VAJ502	A1-F18AC-510-300 WP007 00
22	Standby Pressure Altimeter AAU-39/A	33M-J002	A1-F18AC-510-300 WP005 00
23	Indicated Airspeed Indicator AVU-30/A	33M-J007	A1-F18AC-510-300 WP006 00
24	Pressurized Compartment Altimeter AAU-38/A	8M-J021	A1-F18AC-410-300 WP094 00
25	Mechanical Aircraft Clock ABU-24/A	8M-J020	A1-F18AC-510-300 WP013 00

Figure 1. Cockpit Instruments and Controls (Sheet 4)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
26	ECM Control Panel Assembly	52A-H087	A1-F18AC-760-300 WP007 00
27	Rudder Pedal Position Adjust Handle	-	A1-F18AC-570-300 WP019 00
28	Horizontal Indicator IP-1350/A	80A-J003	A1-F18AC-745-300 WP006 00
29	CRS and HDG Switches	80S-H014/ 80S-H015	A1-F18AG-745-300 WP010 00
30	EMERG BRK/PARK BRK Control	13MPH501	A1-F18AC-130-300 WP073 00
31	Hydraulic Brake Pressure Indicator	8M-H052	A1-F18AC-130-300 WP071 00
32	LH Vertical Console Control Panel	52A-H077	A1-F18AC-130-300 WP093 00
33	LDG GEAR Control	12A-H008	A1-F18AC-130-300 WP004 00
34	Flaps, Landing Gear and Stores Indicator Panel	52A-H084	A1-F18AC-740-300 WP014 00

Figure 1. Cockpit Instruments and Controls (Sheet 5)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
35	Internal Canopy Jett Lever	20MPH510	A1-F18AC-120-300 WP114 00
36	Crew Station Engine Monitor Indicator AEU-12/A	3M-H001	A1-F18AC-270-300 WP065 00
37	Fuel QTY Indicator	5A-H013	A1-F18AC-460-310 WP160 00
38	Master Arm Control Panel Assembly	52A-H075	A1-F18AC-740-300 WP013 00
39	Left Digital Display Indicator IP-1317()	80A-H001	A1-F18AC-745-300 WP004 00
40	LH Advisory and Threat Warning Indicator Panel	52A-H073	A1-F18AC-440-300 WP021 00
41	Electronic Equipment Control C-10380/ASQ	79A-J006	A1-F18AC-741-300 WP006 00
42	Control Stick Adapter Assembly	52A-Y312	A1-F18AC-570-300 WP062 00
43	Aircraft Controller Grip Assembly	52A-J501	A1-F18AC-570-300 WP005 00

Figure 1. Cockpit Instruments and Controls (Sheet 6)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
44	LH Essential Circuit Breakers Control Panel Assembly	52A-H093	A1-F18AC-420-300 WP039 00
45	ECM Disp Switch	65S-H027	A1-F18AC-760-300 WP008 00
46	Ground Power Switch Identification Plate	-	A1-F18AC-420-300 WP023 00
47	1 Gen Tie Control PanelAssembly	1A-H141	A1-F18AC-420-300 WP011 01
48	APU Control Panel	52A-H079	A1-F18AC-240-300 WP018 00
49	EXT Lt Control Panel Assembly	52A-H091	A1-F18AC-440-300 WP004 00
50	Gnd Pwr Control Panel Assembly	1A-H004	A1-F18AC-420-300 WP023 00
51	Fire Test Panel	52A-H097	A1-F18AC-240-300 WP034 00
52	Throttle Quadrant Closure Panel	-	A1-F18AC-270-300 WP074 01

Figure 1. Cockpit Instruments and Controls (Sheet 7)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
53	Throttle Quadrant	52A-H088	A1-F18AC-270-300 WP074 00
	Throttle Grips	52A-H048 52A-H049	WP088 00
54	Fuel System Control Panel	5A-H027	A1-F18AC-460-320 WP104 00
55	FCS Control Panel C-10406/ASW-44	84A-H003	A1-F18AC-570-300 WP009 00
56	Intercommunication Amplifier-Control	76A-H009	A1-F18AC-600-300 WP012 00
57	Anti-G Suit Disconnect	22PAH550	A1-F18AC-410-300 WP098 00
58	Vent Suit Air Hose Assembly	22VAH530	A1-F18AC-410-300 WP105 00
59	Aircraft/Seat Oxygen Disconnect	15MPH507	A1-F18AC-410-300 WP134 00
60	Comm Receptacle	76J-H016	A1-F18AC- WRM-000
61	Pilot Services Control Panel Assembly	52A-H083	A1-F18AC-410-300 WP147 00

Figure 1. Cockpit Instruments and Controls (Sheet 8)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
62	Anti-G Valve	22VAH535	A1-F18AC-410-300 WP096 00
63	MC/Hyd Isol Control Panel Assembly	52A-H081	A1-F18AC-741-300 WP008 00
64	Ant Sel Control Panel Assembly	52A-H089	A1-F18AC-600-300 WP004 00
65	NUC WPN Switch	61S-H177	A1-F18AC-740-300 WP005 00
66	Canopy Actuator Manual Drive Unit	20MAH525	A1-F18AC-120-300 WP111 00
67	ECS Panel Assembly	52A-J078	A1-F18AC-410-300 WP004 00
68	Elec Power Control Panel Assembly	1A-J084	A1-F18AC-420-300 WP011 00
69	Defog Control Assembly	22A-J026	A1-F18AC-410-300 WP054 00
70	Internal Canopy Control Assembly	20S-J003	A1-F18AC-120-300 WP015 00

Figure 1. Cockpit Instruments and Controls (Sheet 9)

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Index Ref. Maintenance Instructions No. Nomenclature Des. 71 RH Essential Circuit 52A-J094 A1-F18AC-420-300 **Breakers Control Panel** WP040 00 Assembly 72 52A-J155 A1-F18AC-730-300 Light Support and Mad Compensator Panel WP007 00 Assembly 73 Map and Data Case A1-F18AC-SRM-220 WP027 00 74 Blank Panel A1-F18AE-SRM-220 WP026 00 Fan Test Control Panel 52A-J053 A1-F18AC-410-300 75 Assembly WP082 00 76 Rlank Panel A1-F18AC-SRM-220 WP026 00 77 AMAC Control Blank A1-F18AC-740-300 Panel WP003 00 76A-J008 78 **KY-58 Control Panel** A1-F18AC-600-300 Assembly WP023 00 79 SNSR Pod Control Box 52A-J080 A1-F18AC-742-300 Panel Assembly WP017 00

Figure 1. Cockpit Instruments and Controls (Sheet 10)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions	
80	INTR LT Control Box Control Assembly	8A-J002	A1-F18AC-440-300 WP016 00	
81	AMAC Control	61A-J022	A1-F18AC-740-300 WP003 00	
2 3 4				

Figure 1. Cockpit Instruments and Controls (Sheet 11)

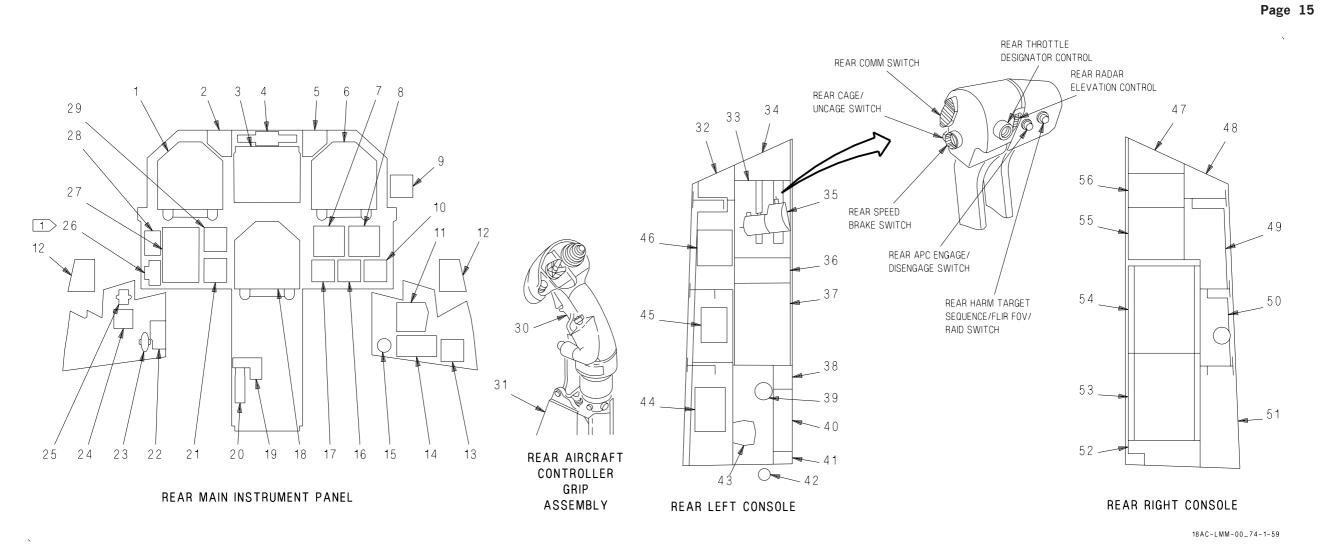


Figure 2. Rear Cockpit Instruments and Controls (Sheet 1)

Figure 2.

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Rear Left Digital Display Indicator	80A-K019	A1-F18AC-745-300 WP007 00
2	EMERG JETT Panel Assembly	61A-K237	A1-F18AC-740-300 WP017 00
3	Rear Electronic Equipment Control C-11919/ASQ	76A-L028	A1-F18AC-741-300 WP009 00
4	Rear Advisory and Threat Warning Indicator Panel	52A-K303	A1-F18AC-440-300 WP024 00
5	Master Mode Select Panel Assembly	61A-L217	A1-F18AC-740-300 WP020 00
6	Rear Right Digital Display Indicator IP-1318( )	80A-L017	A1-F18AC-745-300 WP007 00
7	Rear Attitude Reference Indicator ARU-48/A	33M-L020	A1-F18AC-730-300 WP012 00
8	Rear Azimuth Indicator IP-1276/ ALR-67(V)	62A-L027	A1-F18AC-760-300 WP057 00
9	Rear Standby Compass AQU-3/A	33M-L019	A1-F18AC-730-300 WP010 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 2)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
10	Vertical Speed Indicator AVU-29/A	33M-L018	A1-F18AC-510-300 WP004 00
11	Ejection Mode Selector	25MAL521	A1-F18AC-120-300 WP100 00
12	Rear Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 06
13	Rear Pressurized Compartment Altimeter AAU-55/A	8M-L118	A1-F18AC-410-300 WP095 00
14	Caution Light Indicator Panel	8A-L127	A1-F18AC-440-300 WP020 00
15	Hydraulic Pressure Indicator AGU-15/A	10M-L018	A1-F18AC-450-300 WP012 00
16	Standby Pressure Altimeter AAU-39/A	33M-L016	A1-F18AC-510-300 WP005 00
17	Indicated Airspeed Indicator AVU-30/A	33M-L017	A1-F18AC-510-300 WP006 00
18	Rear Center Digital Display Indicator IP1318()	80A-L016	A1-F18AC-745-300 WP005 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 3)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
19	Buno Light Panel	8DSK155	A1-F18AC-440-300 WP017 00
20	Handle-Pos Adj, Rudder Pedal	-	A1-F18AC-570-300 WP020 00
21	Mechnical Aircraft Clock ABU-24/A	8M-K126	A1-F18AC-510-300 WP013 00
22	EMERG BRK Pull Light Panel	8DSK115	A1-F18AC-440-300 WP017 00
23	EMERG BRK Control	13MPK523	A1-F18AC-130-300 WP074 00
24	EMERG LDG GEAR Light Panel	8DSK114	A1-F18AC-440-300 WP017 00
25	EMERG LDG GEAR Control	12MAK560	A1-F18AC-130-300 WP005 00
26	Control Display Select Panel	80A-K023	A1-F18AC-745-300 WP018 00
27	Rear Crew Station Engine Monitor Indicator AEU-12/A	3M-K002	A1-F18AC-270-300 WP065 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 4)

044 01

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
28	Landing Gear and Flaps Indicator Panel	52A-K305	A1-F18AC-130-300 WP061 00
29	Fuel Quantity Repeater Indicator	5A-K015	A1-F18AC-460-310 WP161 00
30	Rear Aircraft Controller Grip Assembly	52A-L504	A1-F18AC-570-300 WP005 00
31	Rear Control Stick Adapter Assembly	52A-Y312	A1-F18AC-570-300 WP062 00
32	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
33	Rear Throttle Quadrant Closure Panel	-	A1-F18AC-270-300 WP075 02
34	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
35	Rear Throttle Quadrant	52A-K505	A1-F18AC-270-300
	Throttle Grips	52A-K301 52A-K302	WP075 00 WP088 00
36	Blank Panel	-	A1-F18AC-SRM-220 WP026 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 5)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
37	Receiver-Transmitter- Processor RT-1379/ASW	77A-K001	A1-F18AC-630-300 WP016 00
38	Rear Anti-G Suit Disconnect	22PAK557	A1-F18AC-410-300 WP099 00
39	Rear Pilot Services Control Panel Assembly	52A-K304	A1-F18AC-410-300 WP139 00
40	Rear Vent Suit Air Hose Assembly	22VAK569	A1-F18AC-410-300 WP106 00
41	Rear Aircraft/Seat Disconnect	15MPK510	A1-F18AC-410-300 WP135 00
42	Comm Connector	-	A1-F18AC-WRM-000
43	Rear Anti-G Valve	22VAK559	A1-F18AC-410-300 WP097 00
44	Programmer MX-9254/ ALE-39	65A-K003	A1-F18AC-760-300 WP006 00
45	Rear Internal Canopy JETT Lever	20MPK511	A1-F18AC-120-300 WP011 00
46	Volume Control Panel Assembly	76A-K032	A1-F18AC-600-300 WP014 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 6)

044 01

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
47	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
48	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
49	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
50	Fan Test Control and Utility Light Panel Assembly	52A-L309	A1-F18AC-410-300 WP083 00
51	Map and Data Case	-	A1-F18AC-SRM-220 WP027 00
52	Blank Panel	-	A1-F18AC-SRM-220 WP026 00
53	Rear Cockpit Electric Light Control	8A-L097	A1-F18AC-440-300 WP015 00
54	Cockpit Electric Light Control	8A-L001	A1-F18AC-440-300 WP014 00
55	Blank Panel	-	A1-F18AC-SRM-220 WP026 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 7)

044 01

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions	
56	Rear INTR LT Control Box Panel Assembly	8A-L098	A1-F18AC-440-300 WP016 00	
1 F/A-18B 161704 AND UP				

Figure 2. Rear Cockpit Instruments and Controls (Sheet 8)

15 April 1996

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **COCKPIT INSTRUMENTS AND CONTROLS**

**EFFECTIVITY: 163427 THRU 163782** 

#### Reference Material

#### None

#### **Alphabetical Index**

Subject	Page No.
Cockpit and Rear Cockpit Instruments and Controls	3
Cockpit Instruments and Controls, Figure 1	4
Materials Required	2
Rear Cockpit Instruments and Controls, Figure 2	15
Support Equipment Required	2

## **Record of Applicable Technical Directives**

None

### **Support Equipment Required**

None

**Materials Required** 

None

044 02

Page 3

# 1. COCKPIT AND REAR COCKPIT INSTRUMENTS AND CONTROLS.

2. Figure 1 shows the instruments and controls in the cockpit and a reference to the system maintenance manual which contains the removal and installation and repair (if applicable) of each item. Figure 2 shows the instruments and controls in the rear cockpit.

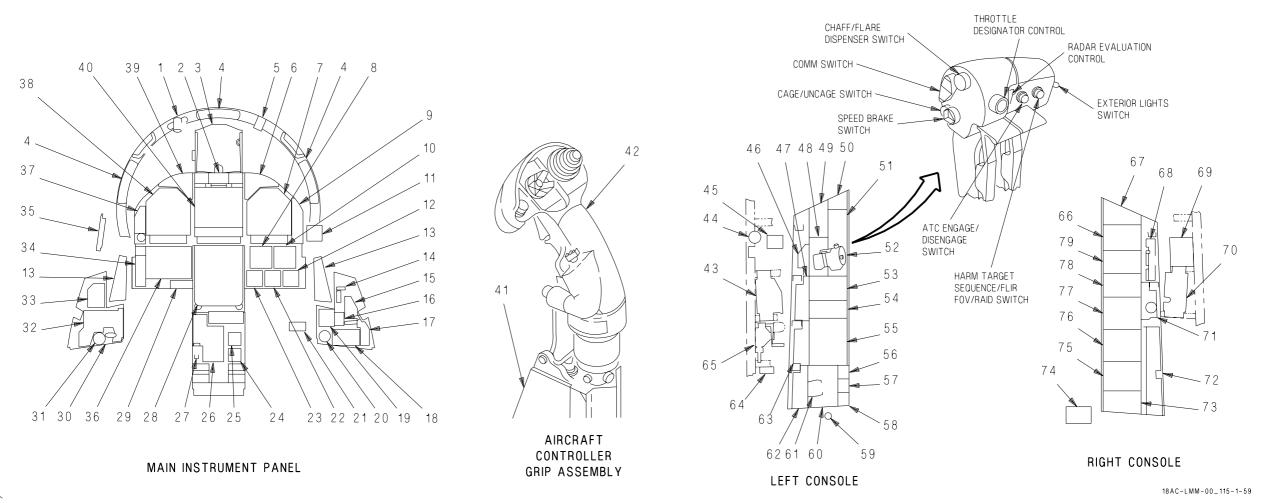


Figure 1. Cockpit Instruments and Controls (Sheet 1)

Figure 1. Figure 1.

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Chart Light	8DSH143	A1-F18AC-440-300 WP018 00
2	Head-Up Display Camera MX-10403/AXQ	79A-J022	A1-F18AC-770-300 WP003 00
3	Head-Up Display Unit AN/AVQ-28	79A-J001	A1-F18AC-745-300 WP003 00
4	Rearview Mirror	-	A1-F18AC-120-300 WP064 00 (F/A-18C) A1-F18AC-120-300 WP088 00 (F/A-18D)
5	Lock/Shoot Light Assembly	8DSJ150	A1-F18AE-740-300 WP023 00
6	RH Advisory and Threat Warning Indicator Panel	52A-J074	A1-F18AC-440-300 WP022 00
7	Right Digital Display Indicator IP-1317( )	80A-J002	A1-F18AC-745-300 WP004 00
8	Attitude Reference Indicator ARU-48A	33M-J015	A1-F18AC-730-300 WP012 00

Figure 1. Cockpit Instruments and Controls (Sheet 2)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
9	Map Gain Control Assembly	52A-J076	A1-F18AC-742-300 WP016 00
10	Forward Azimuth Indicator IP-1276/ ALR-67(V)	62A-J008	A1-F18AE-760-300 WP052 00
11	Standby Compass AQU-3/A	33M-J009	A1-F18AC-730-300 WP010 00
12	Vertical Speed Indicator AVU-29/A	33M-J008	A1-F18AC-510-300 WP004 00
13	Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 03
14	Arresting HOOK Control Handle	19A-J003	A1-F18AC-130-300 WP088 00
15	Wing Fold Control Handle	17A-J008	A1-F18AC-570-300 WP056 00
16	Buno Light Panel	8DSH017	A1-F18AC-440-300 WP017 00

Figure 1. Cockpit Instruments and Controls (Sheet 3)

Indicated Airspeed

Indicator AVU-30/A

Pressurized Compartment

Altimeter AAU-38/A

044 02

A1-F18AC-510-300

A1-F18AC-410-300

WP006 00

WP094 00

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
17	FCS Cool Switch	22S-J095	A1-F18AC-410-300 WP081 00
18	Caution Light Indicator Panel	8A-J042	A1-F18AC-440-300 WP023 00
19	Height Indicator ID-2163/A	67A-J002	A1-F18AC-600-300 WP022 00
20	Hydraulic Pressure Indicator AGU-15/A	10M-J005	A1-F18AC-450-300 WP012 00
21	Static Source Select Valve	28VAJ502	A1-F18AC-510-300 WP007 00
22	Standby Pressure Altimeter AAU-39/A	33M-J002	A1-F18AC-510-300 WP005 00

Figure 1. Cockpit Instruments and Controls (Sheet 4)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
25	Mechanical Aircraft Clock ABU-24/A	8M-J020	A1-F18AC-510-300 WP013 00
26	ECM Control Panel Assembly	52A-H087	A1-F18AE-760-300 WP007 00
27	Rudder Pedal Position Adjust Handle	-	A1-F18AC-570-300 WP019 00
28	Horizontal Indicator IP-1350/A	80A-J003	A1-F18AC-745-300 WP006 00
29	CRS and HDG Set Switches	80S-H014/ 80S-H015	A1-F18AC-745-300 WP010 00
30	EMERG BRK/PARK BRK Control	13MPH501	A1-F18AC-130-300 WP073 00
31	Hydraulic Brake Pressure Indicator	8M-H052	A1-F18AC-130-300 WP071 00
32	LH Vertical Console Control Panel	52A-H077	A1-F18AC-130-300 WP093 00

Figure 1. Cockpit Instruments and Controls (Sheet 5)

044 02

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
33	LDG GEAR Control	12A-H008	A1-F18AC-130-300 WP004 00
34	Flaps, Landing Gear and Stores Indicator Panel	52A-H084	A1-F18AE-740-300 WP018 00
35	Internal Canopy Jett Lever	20MPH510	A1-F18AC-120-300 WP114 00
36	Integrated Fuel-Engine Indicator	85-H043	A1-F18AC-270-300 WP065 01
37	Master Arm Control Panel Assembly	52A-H075	A1-F18AE-740-300 WP017 00
38	Left Digital Display Indicator IP-1317( )	80A-H001	A1-F18AC-745-300 WP004 00
39	LH Advisory and Threat Warning Indicator Panel	52A-H073	A1-F18AC-440-300 WP021 00
40	Electronic Equipment Control C-10380/ASQ	79A-J006	A1-F18AE-741-300 WP006 00

Figure 1. Cockpit Instruments and Controls (Sheet 6)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
41	Control Stick Adapter Assembly	52A-Y312	A1-F18AC-570-300 WP062 00
42	Aircraft Controller Grip Assembly	52A-J501	A1-F18AC-570-300 WP005 00
43	LH Essential Circuit Breakers Control Panel Assembly	52A-H093	A1-F18AC-420-300 WP039 00
44	ECM DISP Switch	65S-H027	A1-F18AE-760-300 WP008 00
45	Ground Power Switch Identification Plate	-	A1-F18AC-420-300 WP023 00
46	Gen Tie Control Panel Assembly	1A-H141	A1-F18AC-420-300 WP011 00
47	APU Control Panel	52A-H079	A1-F18AC-240-300 WP018 00
48	EXT Lt Control Panel Assembly	52A-H091	A1-F18AC-440-300 WP004 00

Figure 1. Cockpit Instruments and Controls (Sheet 7)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions	
49	Gnd Pwr Control Panel Assembly	1A-H004	A1-F18AC-420-300 WP023 00	
50	Fire Test Panel	52A-H097	A1-F18AC-240-300 WP034 00	
51	Throttle Quadrant Closure Panel	-	A1-F18AC-270-300 WP074 01	
52	Throttle Quadrant Throttle	52A-H088	A1-F18AC-270-300 WP074 00	
	Throttle Grips	52A-H048 52A-H049	WP088 00	
53	Fuel System Control Panel	5A-H027	A1-F18AE-460-320 WP126 01	
54	FCS Control Panel C-10406/ASW-44	84A-H003	A1-F18AC-570-300 WP009 00	
55	Intercommunication Amplifier-Control	76A-H009	A1-F18AC-600-300 WP012 00	
56	Anti-G Suit Disconnect	22PAH550	A1-F18AC-410-300 WP098 00	

Figure 1. Cockpit Instruments and Controls (Sheet 8)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
57	Vent Suit Air Hose Assembly	22VAH530	A1-F18AC-410-300 WP105 00
58	Aircraft/Seat Oxygen Disconnect	15MPH507	A1-F18AC-410-300 WP134 00
59	Comm Receptacle	76J-H016	A1-F18AE-WRM-000
60	Pilot Services Control Panel Assembly	52A-H083	A1-F18AC-410-300 WP138 00
61	Anti-G Valve	22VAH535	A1-F18AC-410-300 WP096 00
62	MC/Hyd Isol Control Panel Assembly	52A-H081	A1-F18AE-741-300 WP008 00
63	ANT SEL Control Panel Assembly	52A-H089	A1-F18AC-600-300 WP004 00
64	NUC WPN Switch	61S-H177	A1-F18AE-740-300 WP005 00
65	Canopy Actuator Manual Drive Unit	20MAH525	A1-F18AC-120-300 WP111 00

Figure 1. Cockpit Instruments and Controls (Sheet 9)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
66	ECS Panel Assembly	52A-J078	A1-F18AC-410-300 WP004 00
67	Elec Power Control Panel Assembly	1A-J084	A1-F18AC-420-300 WP011 00
68	Defog Control Assembly	22A-J026	A1-F18AC-410-300 WP054 00
69	Internal Canopy Control Assembly	20S-J003	A1-F18AC-120-300 WP015 00
70	RH Essential Circuit Breakers Control Panel Assembly	52A-J094	A1-F18AC-420-300 WP040 00
71	Light Support and Mad Compensator Panel Assembly	52A-J155	A1-F18AC-730-300 WP007 00
72	Map and Data Case	-	A1-F18AE-SRM-650 WP032 00
73	Blank Panel	-	A1-F18AE-SRM-650 WP030 00

Figure 1. Cockpit Instruments and Controls (Sheet 10)

044 02

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
74	Fan Test Control Panel Assembly	52A-J053	A1-F18AC-410-300 WP082 00
75	Blank Panel	- A1-F18AE WP030 00	
76	KY-58 Control Panel Assembly	76A-J008	A1-F18AC-600-300 WP023 00
77	SNSR Pod Control Box Panel Assembly	52A-J080	A1-F18AC-742-300 WP017 00
78	Release Consent Dummy Panel	61A-J532	A1-F18AE-740-300 WP003 00
79	INTR Lt Control Box Panel Assembly	8A-J002	A1-F18AC-440-300 WP016 00

Figure 1. Cockpit Instruments and Controls (Sheet 11)

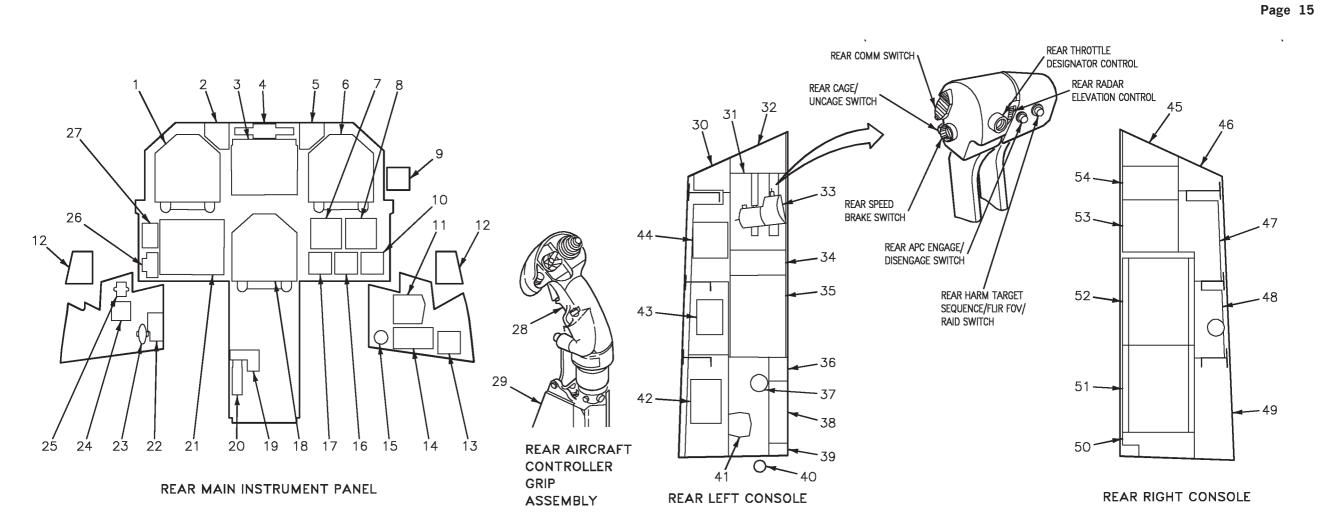


Figure 2. Rear Cockpit Instruments and Controls (Sheet 1)

Figure 2.

18AC-LMM-00-(114-1)-CATI

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Rear Left Digital Display Indicator 1P-1318( )	80A-K019	A1-F18AC-745-300 WP007 00
2	EMERG JETT Panel Assembly	61A-K237	A1-F18AE-740-300 WP019 00
3	Rear Electronic Equipment Control C-11919/ASQ	76A-L028	A1-F18AE-741-300 WP009 00
4	Rear Advisory and Threat Warning Indicator Panel	52A-K303	A1-F18AC-440-300 WP024 00
5	Master Mode Select Panel Assembly	61A-L217	A1-F18AE-740-300 WP020 00
6	Rear Right Digital Display Indicator 1P-1318()	80A-L017	A1-F18AC-745-300 WP007 00
7	Rear Attitude Reference Indicator ARU-48/A	33M-L020	A1-F18AC-730-300 WP012 00
8	Rear Azimuth Indicator IP-1276/ALR-67(V)	62A-L027	A1-F18AE-760-300 WP052 00
9	Rear Standby Compass AQU-3/A	33M-L019	A1-F18AC-730-300 WP010 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 2)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
10	Vertical Speed Indicator AVU-29/A	33M-L018	A1-F18AC-510-300 WP004 00
11	Ejection Mode Selector	25MAL521	A1-F18AC-120-300 WP100 00
12	Rear Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 06
13	Rear Pressurized Compartment Altimeter AAU-38/A	8M-L118	A1-F18AC-410-300 WP095 00
14	Caution Light Indicator Panel	8A-L127	A1-F18AC-440-300 WP020 00
15	Hydraulic Pressure Indicator AGU-15/A	10M-L018	A1-F18AC-450-300 WP012 00
16	Standby Pressure Altimeter AAU-39/A	33M-L016	A1-F18AC-510-300 WP005 00
17	Indicated Airspeed Indicator AVU-30/A	33M-L017	A1-F18AC-510-300 WP006 00
18	Rear Center Digital Display Indicator IP-1318()	80A-L016	A1-F18AC-745-300 WP005 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 3)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
19	Buno Light Panel	8DSK155	A1-F18AC-440-300 WP017 00
20	Handle-Pos Adj, Rudder Pedal	-	A1-F18AC-570-300 WP020 00
21	Rear Integrated Fuel- Engine Indicator	85A-K044	A1-F18AC-270-300 WP065 01
22	EMERG BRK Pull Light Panel	8DSK115	A1-F18AC-440-300 WP017 00
23	EMERG BRK Control	13MPK523	A1-F18AC-130-300 WP074 00
24	EMERG LDG GEAR Light Panel	8DSK114	A1-F18AC-440-300 WP017 00
25	EMERG LDG GEAR Control	12MAK560	A1-F18AC-130-300 WP005 00
26	Control Display Select Panel	80A-K023	A1-F18AC-745-300 WP018 00
27	Landing Gear and Flaps Indicator Panel	52A-K305	A1-F18AC-130-300 WP061 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 4)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
28	Rear Aircraft Controller Grip Assembly	52A-L504	A1-F18AC-570-300 WP005 00
29	Rear Control Stick Adapter Assembly	52A-Y312	A1-F18AC-570-300 WP062 00
30	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
31	Rear Throttle Quadrant Closure Panel	-	A1-F18AC-270-300 WP075 02
32	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
33	Rear Throttle Quadrant	52A-K505	A1-F18AC-270-300 WP075-00
	Throttle Grips	52A-K301 52A-K302	WP088 00
34	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
35	Receiver-Transmitter- Processor RT-1379/ASW	77A-K001	A1-F18AC-630-300 WP016 00
36	Rear Anti-G Suit Disconnect	22PAK557	A1-F18AC-410-300 WP099 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 5)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
37	Rear Pilot Services Control Panel Assembly	52A-K304	A1-F18AC-410-300 WP139 00
38	Rear Vent Suit Air Hose Assembly	22VAK569	A1-F18AC-410-300 WP106 00
39	Rear Aircraft/Seat Disconnect	15MPK510	A1-F18AC-410-300 WP135 00
40	Comm Connector	-	A1-F18AE-WRM-000
41	Rear Anti-G Valve	22VAK559	A1-F18AC-410-300 WP097 00
42	Programmer MX-9254/ ALE-39	65A-K003	A1-F18AE-760-300 WP006 00
43	Rear Internal Canopy Jett Lever	20MPK511	A1-F18AC-120-300 WP011 00
45	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
46	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
47	Blank Panel	-	A1-F18AE-SRM-650 WP030 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 6)

**044 02**Page 21/(22 blank)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
48	Fan Test Control and Utility Light Panel Assembly	52A-L309	A1-F18AC-410-300 WP083 00
49	Map and Data Case	-	A1-F18AE-SRM-650 WP032 00
50	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
51	Rear Cockpit Electric Light Control	8A-L097	A1-F18AC-440-300 WP015 00
52	Cockpit Electric Light Control	8A-L001	A1-F18AC-440-300 WP014 00
53	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
54	Rear INTR LT Control Box Panel Assembly	8A-L098	A1-F18AC-440-300 WP016 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 7)

Change 5 - 1 July 1998

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **COCKPIT INSTRUMENTS AND CONTROLS**

EFFECTIVITY: 163985 AND UP

#### Reference Material

None

#### **Alphabetical Index**

Subject	Page No.
Cockpit and Rear Cockpit Instruments and Controls	2
Cockpit Instruments and Controls, Figure 1	3
Materials Required	2
Rear Cockpit Instruments and Controls, Figure 2	15
Support Equipment Required	2

#### **Record of Applicable Technical Directives**

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 160	3 Jan 92	Dual Cockpit Control Capability For Nuclear Missions, Incorporation of (ECP MDA-F/A-18- 00426)	1 Dec 91	-

#### Support Equipment Required

None

#### **Materials Required**

None

## 1. COCKPIT AND REAR COCKPIT INSTRUMENTS AND CONTROLS.

2. Figure 1 shows the instruments and controls in the cockpit and a reference to the system maintenance manual which contains the removal and installation and repair (if applicable) of each item. Figure 2 shows the instruments and controls in the rear cockpit.

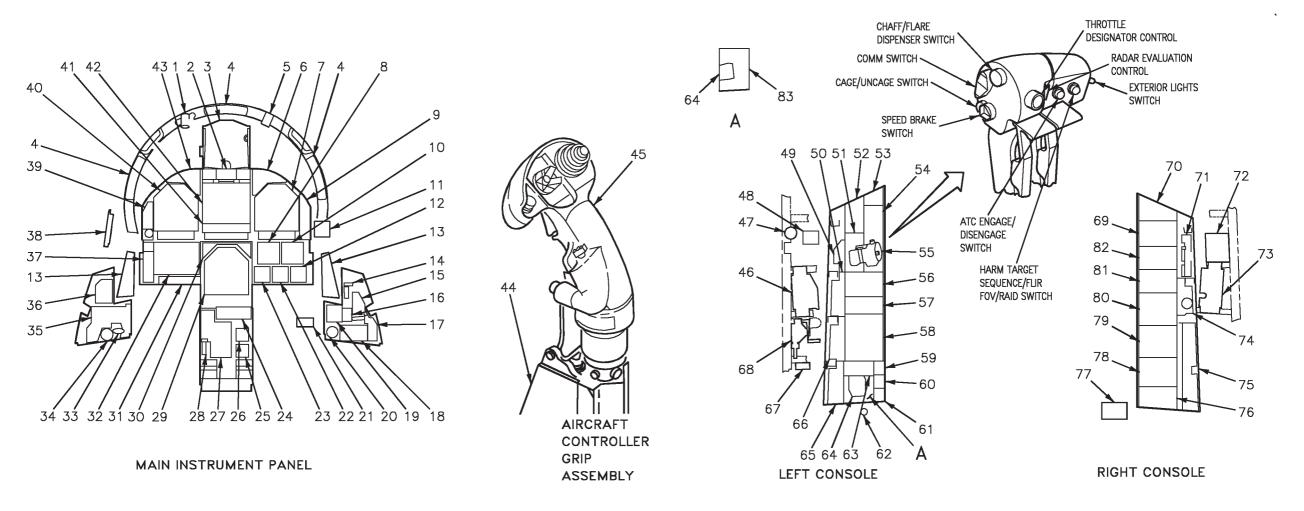


Figure 1. Cockpit Instruments and Controls (Sheet 1)

18AC-LMM-00-(120-1)38-CATI

Figure 1.

044 03

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Chart Light	8DSH143	A1-F18AC-440-300 WP018 00
2	Television Camera MX-10987/AVQ	79A-J022	A1-F18AC-770-300 WP003 00
3	Head-Up Display Unit AN/AVQ-32 Combiner Assembly	79A-J051	A1-F18AG-745-300 WP008 00
4	Rearview Mirror		A1-F18AC-120-300 WP064 00 (F/A-18C) ③ or A1-F18AE-120-300 WP046 00 (F/A-18C) ④ A1-F18AC-120-300 WP088 00 (F/A-18D) ③ or A1-F18AE-120-300 WP050 00 (F/A-18D) ④

Figure 1. Cockpit Instruments and Controls (Sheet 2)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
5	Lock/Shoot Light Assembly	8DSJ150	A1-F18AE-740-300 WP023 00 5 or A1-F18AH-740-300 WP018 00 6
6	RH Advisory and Threat Warning Indicator Panel	52A-J074	A1-F18AC-440-300 WP022 00
7	Right Digital Display Indicator	80A-J002	A1-F18AG-745-300 WP004 00
8	Attitude Reference Indicator ARU-65A	33M-J015	A1-F18AC-730-300 WP012 00
9	Map Gain Control Assembly	52A-J076	A1-F18AC-742-300 WP016 00 7 or A1-F18AH-742-300 WP016 00 8
10	Forward Azimuth Indicator IP-1276/ ALR-67(V)	62A-J008	A1-F18AE-760-300 WP052 00
11	Standby Compass AQU-3/A	33M-J009	A1-F18AC-730-300 WP010 00

Figure 1. Cockpit Instruments and Controls (Sheet 3)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
12	Vertical Speed Indicator AAU-53A	33M-J008	A1-F18AC-510-300 WP004 00
13	Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 03
14	Arresting HOOK Control Handle	19A-J003	A1-F18AC-130-320 WP088 00
15	Wing Fold Control Handle	17A-J008	A1-F18AC-570-300 WP056 00
16	Buno Light Panel	8DSH017	A1-F18AC-440-300 WP017 00
17	FCS Cool Switch	22S-J095	A1-F18AC-410-300 WP081 00
18	Caution Light Indicator Panel	8A-J042	A1-F18AC-440-300 WP023 00
19	Height Indicator	67A-J002	A1-F18AC-600-300 WP022 00
20	Hydraulic Pressure Indicator AGU-15/A	10M-J005	A1-F18AC-450-300 WP012 00

Figure 1. Cockpit Instruments and Controls (Sheet 4)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
21	Static Source Select Valve	28VAJ502	A1-F18AC-510-300 WP007 00
22	Standby Pressure Altimeter AAU-52/A	33M-J002	A1-F18AC-510-300 WP005 00
23	Indicated Airspeed Indicator AVU-35/A	33M-J007	A1-F18AC-510-300 WP006 00
24	Control-Indicator C-10250A/ALR-67(V)	62A-J007	A1-F18AE-760-300 WP051 00
25	Pressurized Compartment Altimeter AAU-55/A	8M-J021	A1-F18AC-410-300 WP094 00
26	Mechanical Aircraft Clock ABU-43/A	8M-J020	A1-F18AC-510-300 WP013 00
27	ECM Control Panel Assembly	52A-H087	A1-F18AE-760-300 WP007 00
28	Rudder Pedal Position Adjust Handle	-	A1-F18AC-570-300 WP019 00
29	Multipurpose Color Display IP-1535/A	80A-J003	A1-F18AG-745-300 WP005 00

Figure 1. Cockpit Instruments and Controls (Sheet 5)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
30	HDG/CRS Set Switch Panel	52A-H098	A1-F18AG-745-300 WP007 00
31	Mode Select Switch Video Select Switch Cockpit Select Switch	79S-H052 79S-H053 79S-H054	A1-F18AC-770-300 WP014 00
32	Integrated Fuel-Engine Indicator	85-H043	A1-F18AC-270-300 WP065 01
33	EMER BRK/PARK BRK Control	13MPH501	A1-F18AC-130-300 WP073 00
34	Hydraulic Brake Pressure Indicator	8M-H052	A1-F18AC-130-300 WP071 00
35	LH Vertical Console Control Panel	52A-H077	A1-F18AC-130-300 WP093 00
36	LDG GEAR Control	12A-H008	A1-F18AC-130-300 WP004 00
37	Flaps, Landing Gear and Stores Indicator Panel	52A-H084	A1-F18AE-740-300 WP018 00 5 or A1-F18AH-740-300 WP013 00 6

Figure 1. Cockpit Instruments and Controls (Sheet 6)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
38	Internal Canopy Jett Lever	20MPH510	A1-F18AC-120-300 WP114 00 3 or A1-F18AE-120-300 WP013 00 4
39	Master Arm Control Panel Assembly	52A-H075	A1-F18AE-740-300 WP017 00  or A1-F18AH-740-300 WP010 00
40	Left Digital Display Indicator	80A-H001	A1-F18AG-745-300 WP004 00
41	Head-Up Display Unit AN/AVQ-32	79A-J001	A1-F18AG-745-300 WP003 00
42	Electronic Equipment Control C-11919/ASQ	79A-J006	A1-F18AE-741-300 WP006 00
43	LH Advisory and Threat Warning Indicator Panel	52A-H073	A1-F18AC-440-300 WP021 00
44	Control Stick Adapter Assembly	52A-Y312	A1-F18AC-570-300 WP062 00
45	Aircraft Controller Grip Assembly	52A-J501	A1-F18AC-570-300 WP005 00

Figure 1. Cockpit Instruments and Controls (Sheet 7)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
46	LH Essential Circuit Breakers Control Panel Assembly	52A-H093	A1-F18AC-420-300 WP039 00
47	ECM DISP Switch	65S-H027	A1-F18AE-760-300 WP008 00
48	Ground Power Switch Identification Plate	-	A1-F18AC-420-300 WP023 00
49	Gen Tie Control Panel Assembly	1A-H141	A1-F18AC-420-300 WP011 00
50	APU Control Panel	52A-H079	A1-F18AC-240-300 WP018 00
51	EXT Lt Control Panel Assembly	52A-H091	A1-F18AC-440-300 WP004 00
52	Gnd Pwr Control Panel Assembly	1A-H004	A1-F18AC-420-300 WP023 00
53	Fire Test Panel	52A-H097	A1-F18AC-240-300 WP034 00
54	Throttle Quadrant Closure Panel	-	A1-F18AC-270-300 WP074 01

Figure 1. Cockpit Instruments and Controls (Sheet 8)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
55	Throttle Quadrant	52A-H088	A1-F18AC-270-300 WP074 00
	Throttle Grips	52A-H048 52A-H049	WP088 00
56	Fuel System Control Panel	5A-H027	A1-F18AE-460-320 WP126 01
57	FCS Control Panel C-10406/ASW-44	84A-H003	A1-F18AC-570-300 WP009 00
58	Intercommunication Amplifier Control	76A-H009	A1-F18AC-600-300 WP012 00
59	Anti-G Suit Disconnect	22PAH550	A1-F18AC-410-300 WP098 00
60	Vent Suit Air Hose Assembly	22VAH530	A1-F18AC-410-300 WP105 00
61	Aircraft/Seat Oxygen Disconnect	15MPH507	A1-F18AC-410-300 WP134 00
62	Comm Receptacle	76J-H016	A1-F18AE-WRM-000
63	2 OBOGS Control Panel Assembly	52A-H083	A1-F18AC-410-300 WP147 00

Figure 1. Cockpit Instruments and Controls (Sheet 9)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
64	Anti-G Valve	22VAH535	A1-F18AC-410-300 WP096 00
65	MC/Hyd Isol Control Panel Assembly	52A-H081	A1-F18AE-741-300 WP008 00
66	ANT SEL Control Panel Assembly	52A-H089	A1-F18AC-600-300 WP004 00
67	NUC WPN Switch	61S-H177	A1-F18AE-740-300 WP005 00 5 or A1-F18AH-740-300 WP016 00 6
68	Canopy Actuator Manual Drive Unit	20MAH525	A1-F18AC-120-300 WP111 00 3 or A1-F18AE-120-300 WP071 00 4
69	ECS Panel Assembly	52A-J078	A1-F18AC-410-300 WP004 00
70	Elec Power Control Panel Assembly	1A-J084	A1-F18AC-420-300 WP011 00
71	Defog Control Assembly	22A-J026	A1-F18AC-410-300 WP054 00

Figure 1. Cockpit Instruments and Controls (Sheet 10)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
72	Internal Canopy Control Assembly	20S-J003	A1-F18AC-120-300 WP015 00 3 or A1-F18AE-120-300 WP021 00 4
73	RH Essential Circuit Breakers Control Panel Assembly	52A-J094	A1-F18AC-420-300 WP040 00
74	Light Support and Mad Compensator Panel Assembly	52A-J155	A1-F18AC-730-300 WP007 00
75	Map and Data Case	-	A1-F18AE-SRM-650 WP032 00
76	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
77	Fan Test Control Panel Assembly	52A-J053	A1-F18AC-410-300 WP082 00
78	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
79	KY-58 Control Panel Assembly	76A-J008	A1-F18AC-600-300 WP023 00

Figure 1. Cockpit Instruments and Controls (Sheet 11)

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Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
80	SNSR Pod Control Box Panel Assembly	52A-J080	A1-F18AC-742-300 WP017 00 7 or A1-F18AH-742-300 WP017 00 8
81	Release Consent Dummy Panel	61A-J532	A1-F18AE-740-300 WP003 00 5 or A1-F18AH-740-300 WP011 00 6
82	INTR Lt Control Box Panel Assembly	8A-J002	A1-F18AC-440-300 WP016 00
83	Pilot Services Control Panel Assembly	52A-H083	A1-F18AC-410-300 WP138 00
1 2 3 4 5 6 7 8	<ul> <li>163985 THRU 164068</li> <li>164196 AND UP</li> <li>163985 THRU 164068</li> <li>164196 AND UP</li> <li>163427 THRU 165206</li> <li>165207 AND UP</li> <li>163985 THRU 164279</li> <li>164898 THRU 164897</li> </ul>		

Figure 1. Cockpit Instruments and Controls (Sheet 12)

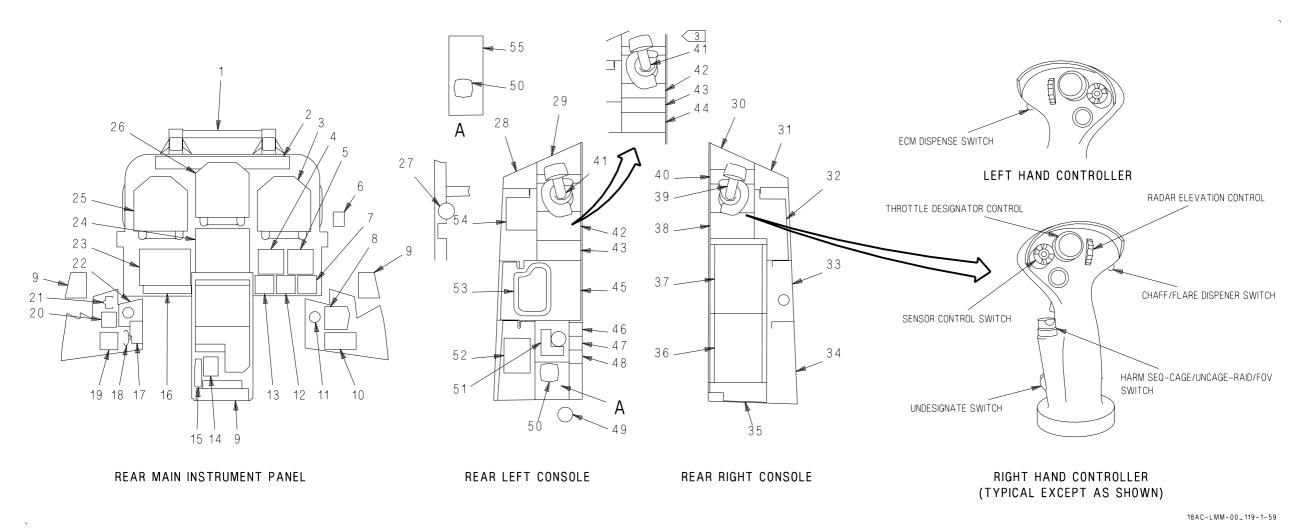


Figure 2. Rear Cockpit Instruments and Controls (Sheet 1)

Figure 2.

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
1	Chaff/Flare Handle Assembly	65A-K029	A1-F18AE-760-300 WP111 00
2	Rear Advisory and Threat Warning Indicator Panel	52A-K303	A1-F18AC-440-300 WP024 00
3	Rear Right Digital Display Indicator	80A-L017	A1-F18AG-745-300 WP007 00
4	Rear Attitude Reference Indicator ARU-65/A	33M-L020	A1-F18AC-730-300 WP012 00
5	Rear Azimuth Indicator IP-1276/ALR-67(V)	62A-L027	A1-F18AE-760-300 WP052 00
6	Rear Standby Compass AQU-3/A	33M-L019	A1-F18AC-730-300 WP010 00
7	Vertical Speed Indicator AAU-53/A	33M-L018	A1-F18AC-510-300 WP004 00
8	Ejection Mode Selector	25MAL521	A1-F18AC-120-300 WP100 00 3 or A1-F18AE-120-300 WP025 00 4
9	Rear Cockpit ECS Louvers	-	A1-F18AC-410-300 WP057 06

Figure 2. Rear Cockpit Instruments and Controls (Sheet 2)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
10	Caution Light Indicator Panel	8A-L127	A1-F18AC-440-300 WP020 00
11	Hydraulic Pressure Indicator AGU-15/A	10M-L018	A1-F18AC-450-300 WP012 00
12	Standby Pressure Altimeter AAU-52/A	33M-L016	A1-F18AC-510-300 WP005 00
13	Indicated Airspeed Indicator AVU-35/A	33M-L017	A1-F18AC-510-300 WP006 00
14	Buno Light Panel	8DSK155	A1-F18AC-440-300 WP017 00
15	Handle-Pos Adj, Rudder Pedal	-	A1-F18AC-570-300 WP020 00
16	Rear LH Lower Instrument Panel	52A-K321	A1-F18AC-770-300, WP014 00
	Video Select Switch	79S-K056	A1-F18AC-770-300, WP015 00
	Mode Switch	79S-K055	A1-F18AC-770-300, WP015 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 3)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
110.	HDG Set Switch 6	80S-K034	A1-F18AG-745-300, WP011 00
	CRS Set Switch 6	80S-K033	A1-F18AG-745-300, WP011 00
17	EMERG BRK Pull Light Panel	8DSK115	A1-F18AC-440-300 WP017 00
18	EMERG BRK Control	13MPK523	A1-F18AC-130-300 WP074 00
19	Rear Pressurized Compartment Altimeter AAU-55/A	8M-L118	A1-F18AC-410-300 WP095 00
20	EMERG LDG GEAR Light Panel	8DSK114	A1-F18AC-440-300 WP017 00
21	EMERG LDG GEAR Control	12MAK560	A1-F18AC-130-300 WP005 00
22	EMERG JETT Panel Assembly	61A-K237	A1-F18AE-740-300 WP019 00 7 or A1-F18AH-740-300 WP014 00 8

Figure 2. Rear Cockpit Instruments and Controls (Sheet 4)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
23	Rear Integrated Fuel- Engine Indicator	85A-K044	A1-F18AC-270-300 WP065 01
24	Rear Electronic Equipment Control C-11919/ASQ	76A-L028	A1-F18AE-741-300 WP009 00
25	Rear Left Digital Display Indicator	80A-K019	A1-F18AG-745-300 WP007 00
26	Multipurpose Color Display IP-1535/A	80A-J003	A1-F18AG-745-300 WP006 00
27	Rear ECM DISP Switch	65A-K028	A1-F18AE-760-300 WP008 00
28	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
29	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
30	4 Blank Panel	-	A1-F18AE-SRM-650 WP030 00
	5 Aft Release Consent Dummy Panel	61A-L298	A1-F18AE-740-300 WP003 01 7 or A1-F18AH-740-300 WP012 00 8

Figure 2. Rear Cockpit Instruments and Controls (Sheet 5)

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Index Ref. Maintenance No. Instructions Nomenclature Des. 31 Blank Panel A1-F18AE-SRM-650 WP030 00 32 Blank Panel A1-F18AE-SRM-650 WP030 00 33 Fan Test Control and 52A-L309 A1-F18AC-410-300 Utility Light Panel WP083 00 Assembly 34 Map and Data Case A1-F18AE-SRM-650 WP032 00 Blank Panel A1-F18AE-SRM-650 35 WP030 00 36 Rear Cockpit Electric 8A-L097 A1-F18AC-440-300 Light Control WP015 00 37 Cockpit Electric Light 8A-L001 A1-F18AC-440-300 Control WP014 00 Rear Intr Lt Control Box 8A-L098 A1-F18AC-440-300 38 Panel Assembly WP016 00 39 Right Hand Controller 52A-L315 A1-F18AG-745-300 WP009 00

Figure 2. Rear Cockpit Instruments and Controls (Sheet 6)

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Change 3

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
40	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
41	Left Hand Controller	52A-K314	A1-F18AG-745-300 WP009 00
42	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
43	3 RECCE Control Panel	89A-K006	A1-F18AC-770-300 WP016 00
44	Volume Control Panel Assembly	76A-K032	A1-F18AC-600-500 WP014 00
45	Receiver-Transmitter- Processor RT-1379/ASW	77A-K001	A1-F18AE-630-300 WP016 00
46	Rear Anti-G Suit Disconnect	22PAK557	A1-F18AC-410-300 WP099 00
47	Rear Vent Suit Air Hose Assembly	22VAK569	A1-F18AC-410-300 WP106 00
48	Rear Aircraft/Seat Disconnect	15MPK510	A1-F18AC-410-300 WP135 00
49	Comm Connector	-	A1-F18AE-WRM-000

Figure 2. Rear Cockpit Instruments and Controls (Sheet 7)

Index No.	Nomenclature	Ref. Des.	Maintenance Instructions
50	Rear Anti-G Valve	22VAK559	A1-F18AC-410-300 WP097 00
51	2 Rear OBOGS Control Panel Assembly	52A-K304	A1-F18AC-410-300 WP154 00
52	Programmer MX-9254/ ALE-39	65A-K003	A1-F18AE-760-300 WP006 00
53	Rear Internal Canopy Jett Lever	20MPK511	A1-F18AC-120-300 WP011 00  or A1-F18AE-120-300 WP014 00 10
54	Blank Panel	-	A1-F18AE-SRM-650 WP030 00
55	Rear Pilot Services Control Panel Assembly	52A-K304	A1-F18AC-410-300 WP139 00
1 F/A-18D 163986 THRU 164068 2 F/A-18D 164196 AND UP 3 F/A-18D 164279 AND UP 4 F/A-18D 163986 THRU 164738 BEFORE F/A-18 AFC 160 5 F/A-18D 164866 AND UP; ALSO F/A-18D 163986 THRU 164738 AFTER F/A-18 AFC 160 6 F/A-18D 163986 AND UP			

Figure 2. Rear Cockpit Instruments and Controls (Sheet 8)

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Change 5 Page 23/(24 blank)

Index	Nomenclature	Ref.	Maintenance
No.		Des.	Instructions
7 8 9 10	<ul> <li>F/A-18D 163434 THRU 164</li> <li>F/A-18D 165409 AND UP</li> <li>F/A-18D 163986 THRU 164</li> <li>F/A-18D 164196 AND UP</li> </ul>		

Figure 2. Rear Cockpit Instruments and Controls (Sheet 9)

Change 7 - 1 May 2000

Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### FOREIGN OBJECT SEALING

#### **Reference Material**

#### None

### **Alphabetical Index**

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Installation and Repair	2
Installation	3
Repair	4
Introduction	2
Materials Required	3
Support Equipment Required	2

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Page 2

## **Record of Applicable Technical Directives**

#### None

#### 1. INTRODUCTION.

2. The procedures in this work package are provided to install or repair tape used in sealing aft fuselage structure lightening holes. Figure 1 shows typical examples of sealing when cable assemblies, waveguides and air ducts are routed through lightening holes. Sealing of aft fuselage structure lightening holes is required to prevent foreign objects from entering aft fuselage compartments through the holes.

#### 3. INSTALLATION AND REPAIR.

# Support Equipment Required NOTE

Alternate item type designations or part numbers are listed in parentheses.

Part Number or Type Designation

Nomenclature

Model 950, Pyles Ind (Model 250, SEMCO) Pneumatic Potting Gun

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Chasification

V45 UU
Page 3

#### **Materials Required**

or Part Number	Nomenclature
MS3367-7-0	Tiedown Strap
DS-108F	Solvent, Wipe
(CAGE 30256)	
MIL-T-83284 3.000 IN	Tape, Pressure Sensitive
(CAGE 81349)	
AMS 3276 Class B 1/4	Sealing Compound
(CAGE 81343)	

#### 4. INSTALLATION.

a. Install tiedown strap on cable assemblies even with structure.

## WARNING

Solvent may cause eye, skin and respiratory irritation. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- b. Clean approximately 1 inch of surface area around edge of lightening hole with solvent. Allow 15 minutes for solvent to air dry before applying tape or sealing compound.
- c. Wrap two layers of tape around cable assembly that routes through structure just above aluminum foil installed over lightening hole.

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Change 7

d. Cover lightening holes in structure with a minimum of three layers of tape.

# WARNING

Sealing Compound may cause allergic skin reaction. May cause eye, skin and respiratory irritation. Possible cancer hazard based on animal data. Avoid breathing dust (vapor, mist, gas). Keep container closed. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

- e. Apply sealing compound to seal gaps between exposed cable assembly and tape.
- f. Wrap cable assembly, 2 to 3 inches, either side of cable break out point, with a minimum of 2 plies of tape.
  - g. Apply sealing compound to seal tape where:
    - (1) tape ends on structure.
    - (2) tape ends.
    - (3) tape overlaps.
    - (4) tape terminates on cable assemblies.

#### 5. REPAIR.

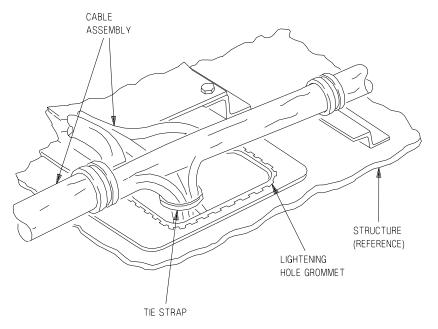
a. Remove damaged tape and sealing compound, as required.

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Change 7

b. Do steps in paragraph 4, as required, to replace damaged tape and sealing compound.

Page 5

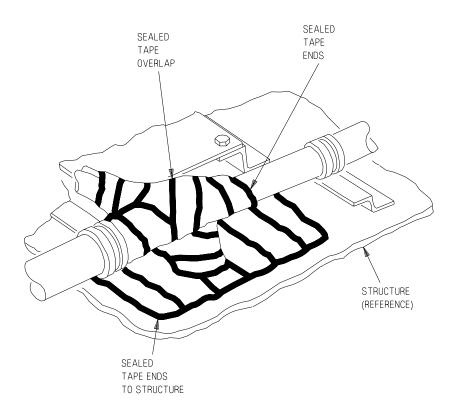


TYPICAL CABLE ASSEMBLY

18AC-LMM-00\_75-1

Figure 1. Foreign Object Sealing (Sheet 1)

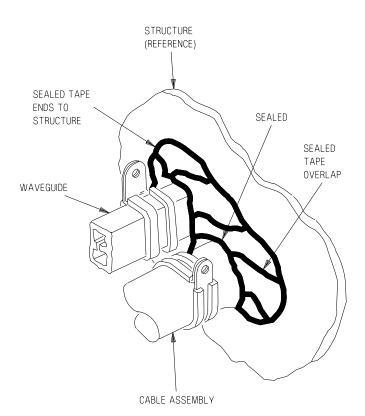
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TYPICAL CABLE ASSEMBLY

18 A C - L M M - 00 \_ 75 - 2

Figure 1. Foreign Object Sealing (Sheet 2)

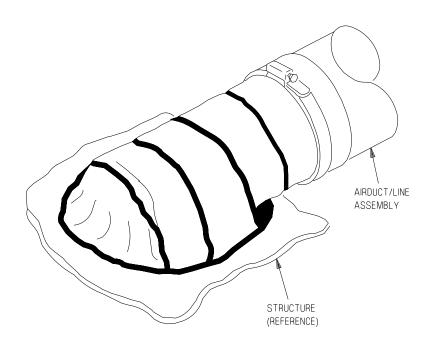


TYPICAL WAVEGUIDE/CABLE ASSEMBLY

18 A C - L M M - 00 \_ 75 - 3

Figure 1. Foreign Object Sealing (Sheet 3)

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TYPICAL AIRDUCT/LINE ASSEMBLY

18 A C - L M M - 00 \_ 75 - 4

Figure 1. Foreign Object Sealing (Sheet 4)

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **SELF RETAINING BOLTS**

### **Reference Material**

#### None

# **Alphabetical Index**

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AS301 Series	5
LB34 Series	7
LB35 Series	5
LB36 Series	7
LB46 Series	8
LB52T Series	10
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AS301 Series	5
LB34 Series	7
LB35 Series	5
LB36 Series	7
LB46 Series	8
LB52T Series	4
5033T Series	3
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Support Equipment Required	2

### **Record of Applicable Technical Directives**

None

# **Support Equipment Required**

Refer to Procedure

## **Materials Required**

Refer to Procedure

#### 1. REMOVAL.

- a. Bolt part numbers AS300 series, AS301 series, LB34 series, LB35 series, LB36 series or 5033T series (figure 1).
  - (1) Remove nut and, if installed, washer(s).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while removing bolt.

- (2) Press plunger in and remove bolt.
- b. Bolt part number LB46 series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in before removing nut and washer from bolt and before removing bolt.

(1) Press plunger in and remove nut and washer(s).



Use of finger to hold plunger of self retaining bolt in while removing bolt may result in personnel injury.

(2) Press plunger in and remove bolt.

c. Bolt part number LB52T series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while removing nut from bolt and while removing washer(s) and bolt.

#### NOTE

If clearance allows and inhibitor T17-() is available, it may be used to hold plunger in while removing nut from in back of retaining element. Inhibitor must then be removed to remove nut from bolt. Inhibitor may also be used to hold plunger in while removing washer(s) and bolt.

(1) Press plunger in and remove nut and washer(s).



Use of finger to hold plunger of self retaining bolt in while removing bolt may result in personnel injury.

(2) Press plunger in and remove bolt.

#### 2. INSTALLATION.

a. Bolt part numbers LB35 series or AS301 series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while installing bolt.

(1) Press plunger in and install bolt.

#### NOTE

To take up excess grip length, use one to three thin washers, one or two thick washer(s) or one thick and one thin washer between retaining element and components. Be sure retaining element is fully extended and will prevent bolt backing out.

Use washers per parts list. If no washers are specified, use NAS1149D() J series washers against aluminum or cadmium plated components and NAS1149C()R series washers against titanium or stainless steel components.

(2) Install washer(s) per parts list and/or for correct grip length.

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Be sure retaining element is fully extended to prevent bolt backing out.

(3) Install nut, tighten or torque per procedure and install cotter pin. (QA)

b. Bolt part numbers LB34 series, LB36 series or AS300 series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while installing bolt.

#### NOTE

To take up excess grip length, use one to three thin washers, one or two thick washer(s) or one thick and one thin washer under head. Be sure retaining element is fully extended and will prevent bolt backing out.

Use washers per parts list. If no washers are specified, use NAS1149D() J series washers against aluminum or cadmium plated components and NAS1149CN()R series washers against titanium or stainless steel components.

(1) Press plunger in and install bolt with washer(s) per parts list and/or for correct grip length.

# CAUTION

Be sure retaining element is fully extended and will prevent bolt backing out.

- (2) Install nut, tighten or torque per procedure and install cotter pin. (QA)
  - c. Bolt part numbers 5033T series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while installing bolt.

- (1) Press plunger in and install bolt.
- (2) Install nut and torque per procedure. (QA)
- d. Bolt part numbers LB46 series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while installing bolt and before installing washer(s) and nut on bolt.

(1) Press plunger in and install countersunk washer on bolt with countersink toward head of bolt.

# WARNING

Use of finger to line up components or to hold plunger of self retaining bolt in while installing bolt may result in personnel injury.

(2) Press plunger in and install bolt per procedure.

#### NOTE

To take up excess grip length, one to three washers may be installed under nut.

(3) Press plunger in, install washer(s) and nut, torque nut per procedure and install cotter pin. (QA)

e. Bolt part numbers LB52T series (figure 1).



To prevent component damage, make sure plunger on self retaining bolt is pressed in while installing bolt and before installing washer(s) and nut on bolt.

#### **NOTE**

If clearance allows and inhibitor T17-() is available, it may be used to install bolt and washer(s). Inhibitor must be removed to start nut on bolt, then may be used while running nut down over retaining element. Remove inhibitor after use.

(1) Press plunger in and install countersunk washer with countersink toward head on bolt.



Use of finger to line up components or to hold plunger of self retaining bolt in while installing bolt may result in personnel injury.

(2) Press plunger in and install bolt per procedure.

#### **NOTE**

To take up excess grip length, one to three washers may be installed under nut.

(3) Press plunger in and install washer(s) and nut.

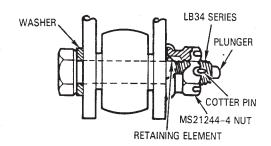


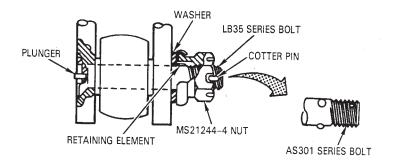
To allow retaining element to function, be sure inhibitor, if used, is removed from bolt. Be sure retaining element is fully extended to prevent nut backing off.

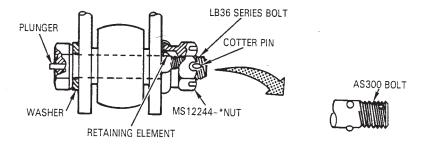
 $\mbox{(4)}$  Remove inhibitor if used, torque nut per procedure and install cotter pin.  $\mbox{(QA)}$ 

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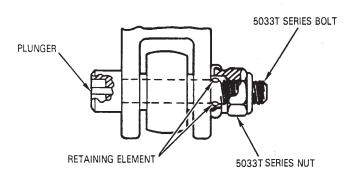


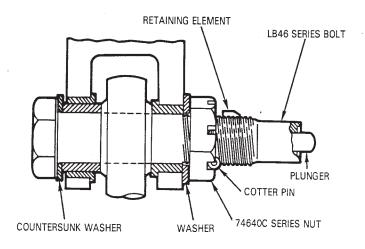




18AC-LMM-00-(87-1)D

Figure 1. Self Retaining Bolts (Sheet 1)

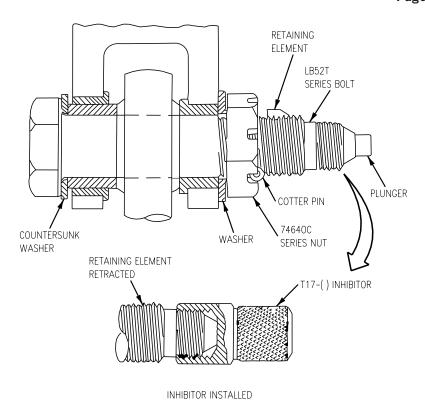




18AC-LMM-00-(87-2)C

Figure 1. Self Retaining Bolts (Sheet 2)

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18AC-LMM-00-(87-3)55-CAT

Figure 1. Self Retaining Bolts (Sheet 3)

047 00

Page 1

15 April 1996

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **CLEANING - MULTIPURPOSE DISPLAY GROUP OPTICS**

### **Reference Material**

None

# **Alphabetical Index**

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Cleaning	3
Introduction	2

### Alphabetical Index (Continued)

Subject	Page No.
Materials Required	4
Support Equipment Required	3

### **Record of Applicable Technical Directives**

None

#### 1. INTRODUCTION.

- 2. This procedure is applicable for cleaning the optics of the components listed below:
  - a. Digital Display Indicator IP-1317( ) (161353 THRU 163782)
  - b. Digital Display Indicator IP-1318( ) (F/A-18B AND F/A-18D)
  - c. Digital Display Indicator IP-1556( ) (163985 AND UP)
  - d. Head-Up Display Unit AN/AVQ-28 (161353 THRU 163782)
    - (1) Combiner Assembly

047 00

Page 3

- (2) Optics Assembly Cover
- e. Head-Up Display Unit AN/AVQ-32 (163985 AND UP)
  - (1) Combiner Assembly
  - (2) Optics Assembly Cover
- f. Horizontal Indicator IP-1350/A (161353 THRU 163782)
- g. Multipurpose Color Display IP-1535( ) (163985 AND UP)

#### 3. CLEANING.

## **Support Equipment Required**

Part Number or Type Designation

Nomenclature

Camel Hair Brush

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# **Materials Required**

Specification or Part Number

Nomenclature

CCC-C-458, Type 3, Class 2 (CAGE 81348) Flannel Cloth

MIR-O-LEN (CAGE 96448)

Cleaning Solution



To prevent damage to optical surfaces, do not rub excessively or use abrasive material for cleaning.

- a. Remove dust or loose foreign matter from optical surface with a clean camel hair brush.
  - b. Moisten clean flannel cloth with cleaning solution.
  - c. Clean optical surface by wiping in one direction only.
- d. Dry optical surface with clean, dry flannel cloth. Wipe dry in one direction only.

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#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### FASTENER AND ATTACHING PARTS CORROSION PROTECTION

This WP supersedes WP048 00, dated 15 April 1996.

#### **Reference Material**

None

### **Alphabetical Index**

Subject	Page No
Application	2
Introduction	2
Materials Required	3
Support Equipment Required	2

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## **Record of Applicable Technical Directives**

None

#### 1. INTRODUCTION.

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2. If moldline fastener corrosion protection is required, refer to A1-F18AC-SRM-200, WP011 00. Also, for sealant preparation and addition application, refer to A1-F18AC-SRM-200, WP011 00.

#### 3. APPLICATION.

**Support Equipment Required** 

None

048 00 Page 3

Change 3

# **Materials Required**

Alternate item type specifications or part numbers are listed in parentheses.

Specification or Part Number	Nomenclature
MIL-S-81733 TYPE 1-1/2 (CAGE 81349)	Sealing Compound (Sealant)
DS-108F (CAGE 30256)	Solvent, Wipe
CCC-C-440 TYPE 1 CLASS 1 (CAGE 81348)	Cheesecloth
-	Brush (1/4 or 1/2 inch paint type) Nonmetallic Scraper

a. When reinstalling fastener and attaching parts, scrape off old sealant with a nonmetallic scraper.

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# WARNING

Wipe solvent should be used with care. Gloves must be worn to prevent injury.

- b. Clean area to be sealed using clean cheesecloth moistened with wipe solvent. Following cleaning, allow to air dry for 15 minutes before application of coatings, sealant or adhesives.
  - c. Repeat step b until no soil is visible on cheesecloth.

# **WARNING**

Sealant is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

Page 5/(6 blank)

- d. Unless otherwise specified in installation procedure, brush coat fasteners and attaching parts with sealant per substep below:
- (1) Apply a small bead or layer of sealant around fastener shank, countersink, dimple, or conical area of fastener head. Sealant can be applied either before fastener is installed or after installation, with half the shank length exposed.
  - (a) Do not allow sealant to get on or between moving parts.
- (b) Do not allow sealant to get between electrical bonding surfaces.
- (c) Unless otherwise specified, do not allow sealant on the threads of fasteners.
- (2) Fasteners must be installed within a half hour of sealant application. After nut is installed and if required safetied, wipe off excess sealant but make sure all portions of fastener and attaching parts remain covered with sealant.
- e. Apply sample of sealant to a piece of scrap metal. Keep sample in same area as repair.
  - f. Let sealant cure until sample is rubber-like.

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Page 1

#### ORGANIZATIONAL MAINTENANCE

#### LINE MAINTENANCE PROCEDURES

#### **AIRCRAFT WEIGHT**

### **Reference Material**

### **Alphabetical Index**

Subject	Page No
Aircraft Weight, Figure 1	7
Displaying Aircraft Weight	2
Materials Required	2
Support Equipment Required	2

### **Record of Applicable Technical Directives**

None

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# **Support Equipment Required**

Part Number or Type Designation

Nomenclature

External Electrical Power Source

049

### **Materials Required**

None

#### 1. DISPLAYING AIRCRAFT WEIGHT.

- a. Make sure all weapon stations are empty, except stations with external fuel tanks installed.
  - b. Open door 14R (A1-F18AC-LMM-010).
  - c. ON 161353 THRU 165206, do substeps below:
- (1) Set Armament Computer CP-1342/AYQ-9(V) Weapons Insertion Panel (WIP) ARMAMENT code switches to 00 except stations with external fuel tanks installed. Set FUZING code switches to 00 for all stations (figure 1).
- (2) Verify Armament Computer CP-1342/AYQ-9(V) WIP ARMAMENT code switches for stations with external fuel tanks installed are set to 01.

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- d. ON 165207 AND UP, do substeps below:
- (1) In nose wheelwell, momentarily set MMP ENABLE/BRCU switch to RESET.
- (2) Set Armament Computer CP-2218/AYK-22(V) Weapons Insertion Panel (WIP) display CODE, N and T fields to 0 for all stations, except stations with external fuel tanks installed by doing sub-substeps below:
- (a) On Armament Computer CP-2218/AYK-22(V), momentarily press and release any pushbutton to activate the WIP display.
- (b) On Armament Computer CP-2218/AYK-22(V), press and release the up arrow  $(\land)$  or down arrow  $(\lor)$  buttons to step through all of the weapon stations. The display fields should display 0's or be blank.
- (c) Stations LI, CL and RI should display 01 in the code fields for left inboard, centerline or right inboard weapon stations, if fuel tanks are installed on those stations.
- (d) If any of the WIP display fields require change, press the curser select (>) button to tab to the field that requires change. Then use the up arrow  $(\land)$  and down arrow  $(\lor)$  buttons to change the field.
  - e. Apply electrical power (WP004 00).
- f. On GND PWR control panel assembly, set EXT PWR switch to RESET and release.
- g. On GND PWR control panel assembly, set and hold 1, 2 and 3 switches to B ON for 3 seconds.

- h. On SNSR pod control box panel assembly, set switches as listed below:
  - (1) FLIR switch to ON.
  - (2) On 161353 THRU 163782, set LST/CAM switch to ON.
  - (3) On 163985 AND UP, set LST/NFLR switch to ON.
  - i. Turn on left and right Digital Display Indicators (WP008 00).
- j. Press left Digital Display Indicator MENU pushbutton. Display appears on indicator with no CAUT DEGD display. If CAUT DEGD appears, correct discrepancy per substeps below:
- (1) On F/A-18A AND F/A-18B, do Signal Data Recording Set AN/ASM-612 Test (A1-F18AC-580-200, WP003 00).
- (2) On F/A-18C AND F/A-18D, do Recorder Monitoring Set AN/ASQ-194 Test (A1-F18AE-580-200, WP005 00).
- k. Press right Digital Display Indicator MENU pushbutton until CHKLST option appears. MENU display appears on indicator with no CAUT DEGD display.
- l. Press right Digital Display Indicator CHKLST pushbutton. Checklist display appears on indicator.

Change 5

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If aircraft weight displayed on right Digital Display Indicator is flashing, correct discrepancy before continuing.

- m. If weight display on right Digital Display Indicator is flashing, check for the conditions listed below. If any of the conditions below exist, see A1-F18A( )-FRM-000.
  - (1) MC2 caution
  - (2) CG caution
  - (3) On F/A-18A AND F/A-18B, MSDRS/SDC DEGD
  - (4) On F/A-18C AND F/A-18D, F-QTY
  - (5) Roll Rate Limit Invalid (R-LIM-OFF caution)
  - (6) SMS LOAD Fault advisory
  - (7) Filtered fuel weight exceeds total fuel capacity.

Change 5

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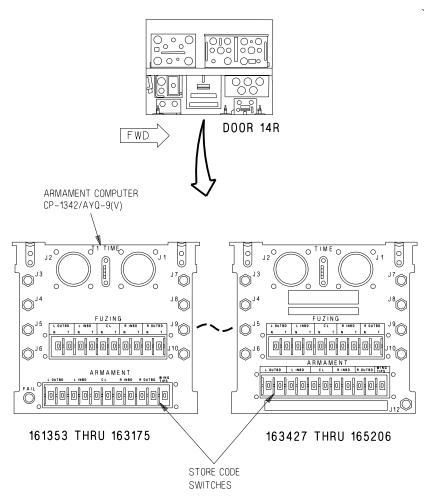
#### NOTE

Aircraft weight is rounded to the nearest 100 pounds and includes 180 pounds for aircrew (On F/A-18B AND F/A-18D, 360 pounds for aircrew). With DIGITAL DATA COMPUTER CONFIG/IDENT 13C AND UP (A1-F18AC-SCM-000), aircraft weight is rounded to the nearest pound.

- n. If weight display on right Digital Display Indicator is not flashing, read and record aircraft weight.
  - o. Turn off left and right Digital Display Indicators (WP008 00).
- p. On SNSR pod control box panel assembly, set switches as listed below:
  - (1) FLIR switch to OFF.
  - (2) On 161353 THRU 163782, set LST/CAM switch to OFF.
  - (3) On 163985 AND UP, set LST/NFLR switch to OFF.
  - q. Remove electrical power (WP004 00).
  - r. Close door 14R (A1-F18AC-LMM-010).

Change 3

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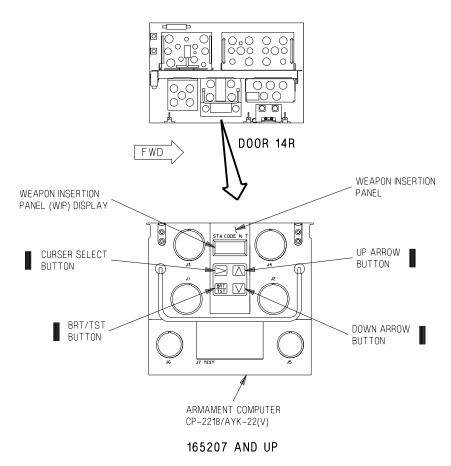


ADA542-117-1-062

Figure 1. Aircraft Weight (Sheet 1)

Change 3

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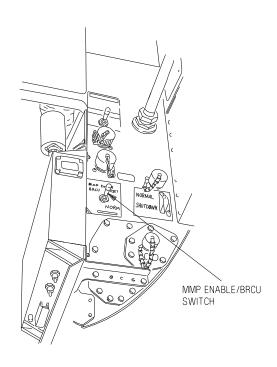


ADA542-117-2-062

Figure 1. Aircraft Weight (Sheet 2)

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NOSE WHEELWELL LEFT SIDE VIEW LOOKING AFT AND OUTBOARD

ADA542-117-3-062

Figure 1. Aircraft Weight (Sheet 3)

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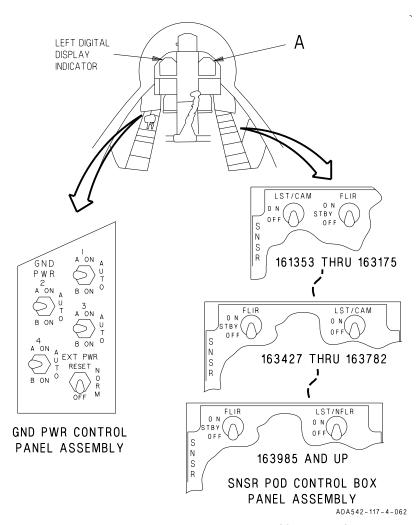


Figure 1. Aircraft Weight (Sheet 4)

Change 3

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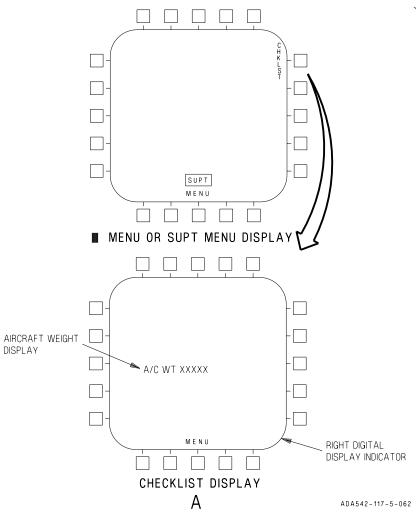


Figure 1. Aircraft Weight (Sheet 5)

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Page 1

#### **ORGANIZATIONAL MAINTENANCE**

#### LINE MAINTENANCE PROCEDURES

#### **WIRE BUNDLE EMI SHIELDING**

### EFFECTIVITY: F/A-18D 164279 AND UP

#### **Reference Material**

Structure Repair - General Information	A1-F18AC-SRM-200
Adhesive, Cement, and Sealant;	
Preparation and Application (	011 00

## **Alphabetical Index**

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Mesh, Figure 1	10
Wire Bundle EMI Shielding Without Knit Wire	
Mesh, Figure 2	12
Introduction	2

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Support Equipment Required	7
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## **Record of Applicable Technical Directives**

None

#### 1. INTRODUCTION.

2. The procedures in this work package are provided for removal and installation of EMI shielding used for bundles that are routed through

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Page 3

lightening holes. Two methods are used as shown in figure 1 and figure 2.

#### 3. WIRE BUNDLE EMI SHIELDING WITH KNIT WIRE MESH.

### **Support Equipment Required**

None

### **Materials Required**

Specification or Part Number	Nomenclature
SC 61298	Knit Wire Mesh
(CAGE 0BKF2)	
MIL-I-23594	Insulation Tape
TYPE 2	(Teflon Barrier Tape)
1/2 IN. WIDE	
(CAGE 81349)	
MIL-S-8802	Sealing Compound
TY2CLB-1/2	
(CAGE 81349)	
MIL-I-46852	Insulation Tape
TYPE 2, 1.00 IN. BLK	(Silicone Rubber Tape)
(CAGE 81349)	
SN10WRAP2 0.040 1LB	Solder, Lead-Tin
(CAGE 81348)	•

#### 4. REMOVAL.

a. Make sure electrical power is off (WP004 00).

- b. Remove door 11L (A1-F18AC-LMM-010).
- c. Open door 3 (A1-F18AC-LMM-010).



Metal tools must not be used for removing sealant. The structure may be scratched, resulting in oxidation.

Care must be taken while removing sealant to prevent damage to aircraft wiring and coax cables.

- d. In doors 3 and 11L, using nonmetallic tool, remove foreign object seal (figure 1).
  - e. In door 3, do the substeps below:
    - (1) Remove clamps (1 and 5) and attaching parts.
- (2) Remove insulation tape (silicone rubber tape) from cable bundle.
- (3) Remove screw and washer attaching terminal (3) to aircraft structure.
  - (4) Remove knit wire mesh from cable bundle.
- (5) Remove insulation tape (teflon barrier tape) from end of coax cable EMI pigtails and cable bundle.
- (6) Remove remaining insulation tape (teflon barrier tape) from cable bundle.

#### 5. INSTALLATION.

- a. Separate EMI pigtail of coax cables (figure 1) from cable bundle. From intersection of EMI pigtails and cable bundle to within 1.0 inch aft of bulkhead, wrap cable bundle with insulation tape (teflon barrier tape) using 0.5 inch overlap.
- b. Lay coax cable EMI pigtails aft along cable bundle and secure loose end of pigtails to cable bundle with insulation tape (teflon barrier tape).
- c. Wrap coax cable EMI pigtails and cable bundle with knit wire mesh starting approximately 2.0 inches forward of clamp (5) and go aft to bulkhead. At bulkhead form an 8.0 inch pigtail with the knit wire mesh for attachment of terminal (3). Tack solder knit wire mesh as necessary.
  - d. Install terminal (3) to pigtail.
- e. Prepare mating surface of terminal (3) and aircraft structure for class R electrical bond (WP037 00).

#### **NOTE**

Attach terminal to aircraft structure while maintaining shortest possible length of pigtail after ground termination.

- f. Attach pigtail to aircraft structure with terminal (3) and attaching parts.
- g. Cover area of knit wire mesh and cable bundle with insulation tape (silicone rubber tape).

- h. Install clamps (1 and 5) and attaching parts.
- i. Apply sealant to electrical bond area (WP037 00).

### **WARNING**

Sealing compound is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

- j. In doors 3 and 11L, install foreign object seal using sealing compound MIL-S-8802, TY2CLB-1/2 (A1-F18AC-SRM-200, WP011 00).
  - k. Install door 11L (A1-F18AC-LMM-010).
  - l. Close door 3 (A1-F18AC-LMM-010).

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# 6. WIRE BUNDLE EMI SHIELDING WITHOUT KNIT WIRE MESH.

### **Support Equipment Required**

None

### **Materials Required**

Specification or Part Number

Nomenclature

MIL-S-8802 TY2CLB-1/2 (CAGE 81349) Sealing Compound

#### 7. REMOVAL.

- a. Make sure electrical power is off (WP004 00).
- b. Open door 3 (A1-F18AC-LMM-010).
- c. In door 3, do the substeps below:



Metal tools must not be used for removing sealant. The structure may be scratched, resulting in oxidation.

Care must be taken while removing sealant to prevent damage to aircraft wiring and coax cables.

- (1) Using nonmetallic tool, remove foreign object seals (figure 2).
- (2) Remove screws and washers attaching terminals (2, 6 and 7), as applicable, to aircraft structure.
- (3) Remove screws (9) and washers, as applicable, attaching terminals on aircraft bundle to aircraft structure.

#### 8. INSTALLATION.

- a. Install terminals (2, 6 and 7, figure 2), as applicable, to pigtails of coax cables or cable bundle.
- b. Prepare mating surface of terminals (2, 6 and 7), as applicable, and aircraft structure for class R electrical bond (WP037 00).

#### NOTE

Attach terminals to aircraft structure while maintaining shortest possible length of pigtails after ground termination.

c. Attach terminals (2, 6 and 7), as applicable, and attaching parts to aircraft structure.

- d. Prepare mating surface of terminals on aircraft bundle (sheet 3), as applicable, and aircraft structure for class R electrical bond (WP037 00).
- e. Attach terminals on aircraft bundle (sheet 3), as applicable, to aircraft structure with screws (9) and washers.

## WARNING

Sealing compound is flammable and toxic to eyes, skin, and respiratory tract. Skin/eye protection required. Avoid repeated/prolonged contact. Use only in well ventilated areas. Keep away from open flames or other sources of ignition.

- f. In door 3, install foreign object seal using sealing compound MIL-S-8802, TY2CLB-1/2 (A1-F18AC-SRM-200, WP011 00).
  - g. Close door 3 (A1-F18AC-LMM-010).

#### 9. ILLUSTRATED PARTS BREAKDOWN.

10. This illustrated parts breakdown has data required for identifying and ordering parts. The manual introduction has more information on IPB data.

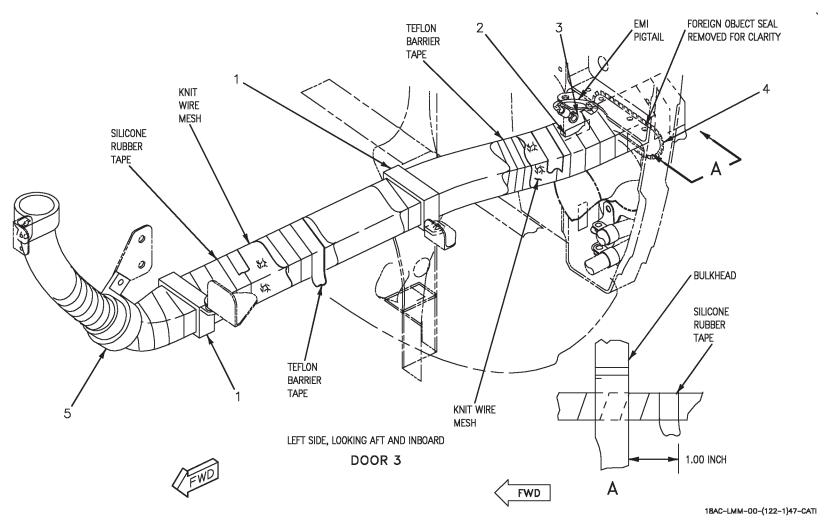


Figure 1. Wire Bundle EMI Shielding With Knit Wire Mesh (Sheet 1)

Figure 1. Figure 1.

## 050 00

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INDEX NO.	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		WIRE BUNDLE EMI SHIELDING WITH			
		KNIT WIRE MESH			
1	NAS1712D14-26N	. CLAMP	2		PAOZZ
	NAS673V2	. SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ
2	74A890601-3129	. MARKER, IDENTIFICATION	1		MDOZZ
3	MS25036-112	. TERMINAL	1		PAOZZ
Ü	NAS1801-3-8	SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ
4	MS21266-2N	. GROMMET	1		PAOZZ
5	MS21919WDG24	. CLAMP	1		PAOZZ
	NAS673V2	. SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ

Figure 1. Wire Bundle EMI Shielding With Knit Wire Mesh (Sheet 2)

<sup>\*</sup> ALTERNATE OR EQUIVALENT PARTS. (WP002 00)

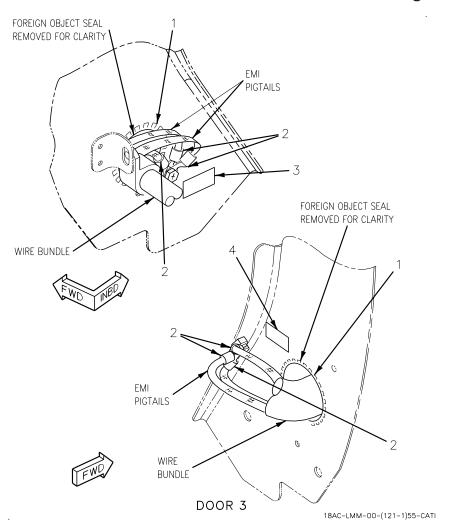
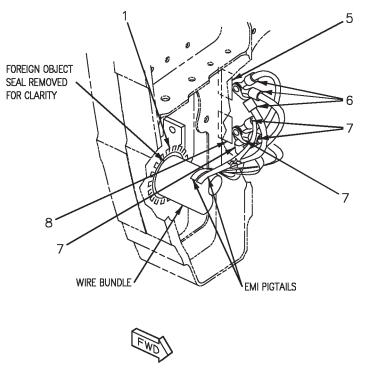


Figure 2. Wire Bundle EMI Shielding Without Knit Wire Mesh (Sheet 1)

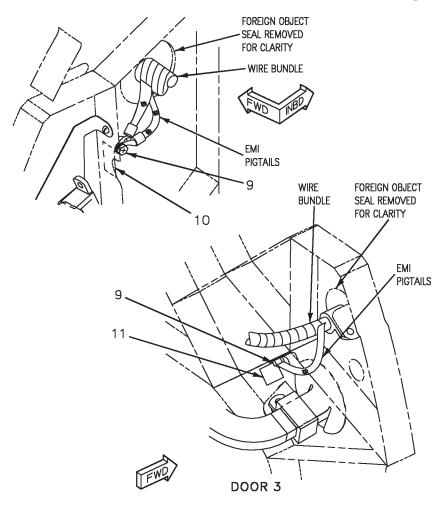
## 050 00

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18AC-LMM-00-(121-2)47-CATI

Figure 2. Wire Bundle EMI Shielding Without Knit Wire Mesh (Sheet 2)



18AC-LMM-00-(121-3)47-CATI

Figure 2. Wire Bundle EMI Shielding Without Knit Wire Mesh (Sheet 3)

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INDEX NO.	PART NUMBER	<b>DESCRIPTION</b> 1 2 3 4 5 6 7	UNITS PER ASSY	USE ON CODE	SM&R CODE
		WIRE BUNDLE EMI SHIELDING WITHOUT KNIT WIRE MESH			
1	MS21266-2N	GROMMET	3		PAOZZ
2	MS25036-112	. TERMINAL	4		PAOZZ
	NAS1801-3-10	. SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ
3	74A890601-3131	. MARKER, IDENTIFICATION	1		MDOZZ
4	74A890601 - 3075	. MARKER, IDENTIFICATION	1		MDOZZ
5	74A890601-3132	. MARKER, IDENTIFICATION	1		MDOZZ
6	MS25036-112	. TERMINAL	3		PAOZZ
	NAS1801-3-10	. SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ
7	MS25036-115	. TERMINAL	4		PAOZZ
	NAS1801-3-12	. SCREW (AP)	1		PAOZZ
	NAS1149D0316J	. WASHER (AP)	1	*	PAOZZ
	AN960JD10LL	. WASHER (AP)	1	*	PAOZZ
8	74A890601 - 3039	. MARKER, IDENTIFICATION	1		MDOZZ
9	NAS1801-3-10	. SCREW	2		PAOZZ
	NAS1149D0316J	. WASHER (USE WITH INDEX 9)	2	*	PAOZZ
	AN960JD10LL	. SEE ABOVE	2	*	PAOZZ
10	74A890601-3130	. MARKER, IDENTIFICATION	1		MDOZZ
11	74A890601 - 3087	. MARKER, IDENTIFICATION	1		MDOZZ

Figure 2. Wire Bundle EMI Shielding Without Knit Wire Mesh (Sheet 4)